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THE PROPHYLACTIC USE OF QUININE IN MALARIA:

WITH SPECIAL REFERENCE TO EXPERIENCES IN MACEDONIA.

BY

C. H. TREADGOLD, M.A., M.D.CAMB., D.T.M.PARIS,
CAPTAIN R.A.M.C.

BETWEEN the beginning of February and the end of April, 1917, I examined the various units of a certain division in Macedonia with a view to determining the proportion of men on duty who were infected with malaria. Smears from 540 men were stained and searched for parasites, and the results are summarized in Table I. Plasmodia were found in over 30 per cent. of the men who had been in Macedonia during the previous summer, while the altered differential leucocyte count suggested that over 60 per cent. of such men were in reality infected. Had it been possible to reckon the absentees in the Malta and Salonica hospitals, the total percentage of infected men would of course have been much greater. Parasites were found in nearly 8 per cent. of men with no history of fever; if we regard the increased hyaline count as evidence of infection, their number increases to over 37 per cent.

As no evidence of infection was found in recent drafts, it may be assumed that the great majority, if not all the men in whom parasites were present, had been infected during 1916 or earlier.

Technicalities.—The average time spent over each slide was about ten minutes, and no man's blood was examined more than once. Gametes were found in over 90 per cent. of the positive slides, and schizonts were also present in a large proportion. *P. vivax* was the common parasite found; *P. falciparum* was noticed on seven occasions, *P. vivax* being also present in four out of the seven: *P. malariae* was only diagnosed once. To simplify matters, *P. falciparum* and *P. malariae* have been reckoned in the table as *P. vivax*.

TABLE I.

Groups I to III are comprised of men who were in Macedonia during the summer of 1916; Group IV of drafts reaching Macedonia between September 1st and December 31st, 1916; and Group V of drafts reaching Macedonia in 1917. Members of the last two groups had never before been out of Britain.

Group.	Total Examined.	*P. vivax* Present.	Hyaline Leucocytes.*	
				Increasing presumably infected to
I. Fever within 3 months of examination	300	120=40%	89	69.6%
II. Fever during summer, but none within 3 months of examination	93	16=17.2%	33	52.6%
III. No history of fever ...	63	5=7.9%	20	39.6%
IV. No history of fever ...	40	3=7.5%	11	35.0%
V. No history of fever ...	44	—		

*15 per cent. or over in men in whom no parasites were found.

The Results of Quinine Prophylaxis.

By quinine prophylaxis is meant the regular administration of quinine with a view to preventing the development or recrudescence of clinical malaria.

Method of Administration.—The salt employed was the sulphate, shown by analysis to be pure; the daily dose (gr. v–xxx) was given either in acid solution or in tablets.

The men in Groups I, II, and III of Table I had been taking quinine during the greater part of 1916, and I was assured by the regimental medical officers that many were taking it at the time I made the blood films. The kind of evidence available is illustrated by a group of twelve men belonging to the same brigade, the majority to a regiment whose medical officer had had considerable experience of malaria in the East, and who was positive that the prescribed dose was being taken; all the men had been taking daily doses of quinine varying from 30 to 10 grains. The length of time since the last relapse varied from eight days to three months. There was tinnitus and deafness in three cases (one taking 30 and two taking 10 grains daily), and deafness in three cases (one taking 30 and two 10 grains daily). In all the 12 cases *vivax* schizonts and gametes were present in the peripheral circulation.

Owing to the varying amounts of quinine ordered by the medical officers attached to the different regiments it was possible to place 125 out of the 150 men examined during February into one or other of the following groups (Table II). Whether the quinine was given in small or large doses or not at all, seemed to make little difference either to the number of relapses or to the proportion of cases in which parasites were found; many of these men were constantly relapsing.

TABLE II.

Groups.	No. of Cases Examined.	No. of Men in Whom Parasites were Found.
I. No quinine between attacks ...	26	16 = 61.5 %
II. 30 gr. daily	21	11 = 50.2 %
III. 20 gr. daily	9	6 = 66.6 %
IV. 15 gr. daily	6	4 = 66.6 %
V. 10 gr. daily	48	22 = 45.8 %
VI. 15 to 30 gr. biweekly	11	3 = 27.2 %
VII. 6 gr. daily and 12 gr. biweekly ...	4	3 = 75.0 %

The evidence so far considered indicates (1) that, despite infection, a fair proportion of men examined had, temporarily at any rate, resisted illness or got the upper hand of the disease. (2) That a great deal of sickness due to malaria nevertheless existed in the division, much of it being little influenced by the administration of quinine.

The figures available from French sources show an even higher degree of infection. For example, Garin[1] claims that plasmodia (usually gametes) can be found in the blood of from 60 to 80 per cent. of troops returning from Macedonia without a history of malaria, while Abrami[2] states that from 85 to 95 per cent. of the French Macedonian army was attacked by malaria in spite of early and general preventive quininization! An early and correct solution of the following problems is therefore urgently needed:

I. Is any appreciable proportion of the Macedonian force saved illness through the administration of prophylactic quinine? If so, what proportion?

II. Is the general course of the disease ever affected by the previous administration of prophylactic quinine? If so, is the sum of such influences favourable or the reverse?

To answer these questions demands an exact knowledge of the conditions upon which the usefulness of the drug, both as a prophylactic and as a curative agent, depend. Unfortunately these conditions have never been thoroughly investigated on scientific lines, and large gaps in our knowledge exist. In spite of these drawbacks I have been tempted to analyse and draw conclusions from the data available in the literature of the subject.

I.—WHAT PROPORTION OF THE MACEDONIAN FORCE IS SAVED ILLNESS THROUGH THE PROPHYLACTIC ADMINISTRATION OF QUININE?

A. *General Considerations and Analysis of Statistical Evidence.*

Altogether I had access to some two hundred original articles, reports of medical societies, etc., in which the question of quinine prophylaxis was either dealt with or discussed. Nearly all of them were written in English, French, or German, and all—with one exception—were published between the discovery of the malaria parasite in 1880 and the present time. Of the authors 52.2 per cent. gave no details of their personal experience, while only 16.9 per cent. made use of controls. Table III gives an idea of the opinions expressed by these different writers, no less than 80 per cent. of whom were in favour of quinine prophylaxis.

TABLE III.—*Views of Writers on Quinine Prophylaxis.*

	In Favour of Quinine.	In Favour of Quinine with Reservations.	Against.	Total.
No statistics	65	21	20	106
Statistics but no controls	43	6	12	61
Statistics with controls...	26	0	8	34
Total	134	27	40	201

The majority of these papers were, however, devoid of interest. No doubt a large number of writers were unfavourably influenced by the difficulties in the way of controlling their results, and realized the impossibility of appreciably increasing our knowledge in the absence of such controls; be this as it may, the difficulties in the way of experimental research have unfortunately brought extremists to the fore, and such statements as the following are scattered throughout the literature:

> The whole trend of recent inquiry and the results of clinical experiment have been to show that at the present day, more than ever before, the scientific administration of quinine is established as a measure of very great value and that it is indispensable in the general prevention of the disease.[3]
>
> Quinine has its position in relief and cure, but in sanitary administration it has none.[4]

Knowing as we do that resistance to malarial disease is considerably greater in the inhabitants of malarial countries than it is in immigrants from non-malarial ones, it would seem natural to suppose that, other things being equal, the benefit derived from the use of prophylactic quinine varies directly as the resistance of the individual taking it—in other words, the greater the resistance the better the statistics. The truth of this supposition can only be tested in the present state of our knowledge by analysing the statistical evidence from different countries, taking care to distinguish between the natives of such countries and immigrants.* This has been accordingly done in Tables IV to VII.

TABLE IV.—*Countries bordering on Mediterranean Basin.*

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	16	18
In favour of quinine with reservations	0	0
Against	1	0
Total	17	18

All thirty-four papers in favour of quinine prophylaxis deal with the question in so far as it affects the permanent inhabitants of the respective countries; the single paper against deals with temporary inhabitants—namely, the French army in Macedonia.

TABLE V.—*Africa excluding the Mediterranean Area.*

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	13	2
In favour of quinine with reservations	1	0
Against	3	2
Total	17	4

One of the four papers in which controls were used deals with natives and is in favour of quinine prophylaxis; the remaining three deal with immigrant whites, one paper being in favour and two against.

TABLE VI.—*Southern Asia.*

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	14	5
In favour of quinine with reservations	1	0
Against	6	4
Total...	21	9

Three out of the nine papers in which controls were used deal with natives, and are in favour of quinine prophylaxis. The remaining six deal either with immigrants or with partly immigrant populations, such as coolies on rubber plantations; two were in favour of quinine prophylaxis, four against.

* The full bibliography of the authors whose views are summarized in Tables IV to VII will be published in the *Journal of the Royal Army Medical Corps* for June.

TABLE VII.—*North and South America, including West Indies.*

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	3	1
In favour of quinine with reservations	3	0
Against	1	2
Total...	7	3

One out of the three papers in which controls were used deals with natives, and is in favour of quinine prophylaxis; the other two deal with immigrants, and are against.

A study of these tables reveals the existence of a state of affairs very different from what might have been anticipated from merely glancing over the opinions of the various writers summarized in Table III, especially when we remember that controlled results are the only results of any scientific value. When controls were used and natives of the respective countries investigated, no less than twenty-three, or 100 per cent. of workers, were in favour of prophylactic quinine. When controls were used and immigrants dealt with, only three out of eleven, or 27.2 per cent., were in its favour. The evidence available would therefore seem to justify the enunciation of the following conclusion: "Other things being equal, the natives of malarial districts derive more benefit from quinine prophylaxis than immigrants from non-malarial ones."

Value of Prophylactic Quinine to the Natives of Malarial Countries in the Mediterranean Area.

We have seen that all the available statistical evidence is in favour of administering prophylactic quinine to the inhabitants of Mediterranean districts in which malaria is endemic. What does this really amount to? Celli, one of the best known of the Italian workers, thus expresses himself:

> The daily use of quinine is as necessary as daily bread during certain months.[5]
>
> He who takes quinine every day, and therefore has always a supply of quinine in the blood stream, can undergo with impunity inoculations of blood full of malarial parasites, and can expose himself with little or no danger to the bites of infected mosquitos.[6]

Yet at a later date the following analysis of very extensive clinical material was published by the same author.[7]

TABLE VIII.—*Quinine and Mosquito Prophylaxis* (Celli).

Mosquito prophylaxis *plus* quinine prophylaxis	Symptoms in 1.75 % = 1 in 57.
Mosquito prophylaxis only...	Symptoms in 2.5 % = 1 in 40.
Quinine prophylaxis only ...	Symptoms in 20 % = 1 in 5.
No protection	Symptoms in 33 % = 1 in 3.

Clearly the quinine given produced some effect, but compared with the results obtained by mosquito prophylaxis, its action was almost negligible.

The brothers Sergent, who have investigated the subject for many years in Algeria, seem less enthusiastic than they used to be. The last paper I have seen gives details of the quinine given to native children in 1910.[8] One of their tables is reproduced, and the authors content themselves with the observation that all methods give appreciable results.

TABLE IX.—*Quinine Prophylaxis with Controls* (Ed. and É. Sergent).

Dose of Quinine.	Improvement.	No Change.	Worse.
0.2 gram daily	19 = 5.5 %	315 = 83.5 %	7 = 2.02 %
0.6 gram every 3 days ...	19 = 4.2 %	425 = 94.6 %	4 = 0.9 %
0.6 gram every 6 days ...	35 = 9.7 %	300 = 80.4 %	16 = 4.8 %
Controls (no quinine) ...	5 = 0.8 %	220 = 90.5 %	21 = 8.7 %

These Italian and North African results are not very impressive, especially when it be remembered that we are dealing with the only type of case in which a consideration of the general statistical evidence led us to suppose that really striking benefit would be uniformly attained—namely, natives who have presumably inherited and acquired a certain amount of immunity against the parasites of their own country.

B. *Methods of Giving Prophylactic Quinine.*

The two methods usually employed are: (1) A small daily dose (5 grains, for example); (2) a larger quantity (usually 15 grains, taken on two consecutive days at intervals of from a week to ten days).

The advocates of the first method claim that quinine taken in this way is always circulating in the blood, and object to the other because it leaves the individual defenceless for several days owing to the rapid excretion of the quinine absorbed. The partisans of the second method maintain that by giving quinine in this manner the curative effect of the drug is not interfered with, but that the use of the first method may lead to the production of quinine-proof strains of parasites. I have searched the literature, but can find no evidence of one method having any appreciable advantage over the other.

In Italy, Greece, and North Africa, 3 to 6 grains daily is the ordinary dose, and larger quantities are not usually supposed to give any better results. It is seen from Table II that, on the whole, the smallest percentage of cases was diagnosed in those who were taking least quinine. The possible significance of these facts will be considered later.

C. *"Suggestion" in Quinine Prophylaxis.*

In quinine prophylaxis, as in all forms of medical treatment, the personality of the physician is not without influence, while the extent of his confidence in the treatment proposed can usually be gauged by the patient with considerable accuracy.

Laveran,[9] in his book on malaria, published in 1898, comments on the fact that the English, who previously wrote so much in favour of prophylactic quinine, seem to have got tired of it. The psychological aspect of malaria prophylaxis has received considerable attention from American writers, several of whom regard the co-operation of the public as essential, and agree that no means of stimulating its curiosity and of keeping its sympathy should be neglected.[10, 11] In Macedonia the French authorities advertise the merits of quinine by means of humorous coloured posters and picture post cards, which must go far towards reconciling the *poilu* to his daily dose. In Algeria the brothers Sergent have initiated the use of pink tablets containing three parts of sugar and two of quinine bihydrochloride, and state that these are everywhere accepted by the natives with the greatest alacrity, in marked contrast to their attitude towards the classical method. The striking possibilities of suggestion are vividly brought home by the following incident, related in all seriousness by Henrot.[12]

Dr. Nouat, head of the military hospital, Calcutta, was consulted by the Governor of Bengal as to the best way of protecting messengers against malaria. So many died from pernicious malaria as a result of the unhealthy country they had to cross that messengers had become unobtainable. Dr. Nouat, acting on a theory prevalent at the time—that infection took place via the respiratory tract—constructed respirators containing finely divided animal charcoal, and made the messengers wear them; the effect was excellent, for the messengers, although taking exactly the same route as their predecessors, ceased being ill.

D. *Conclusions as to the Effect of Quinine in Preventing Clinical Malaria in Macedonia.*

1. *Primary Malaria.*—From Table I it is seen that some of the men exposed to the risk of infection escaped, evidently because: (*a*) They had never been bitten by infected mosquitos; or (*b*) if infected, their powers of resistance were equal to the occasion, and no clinical symptoms ensued. If it be asked to what extent the natural resistance of these latter had been reinforced by taking quinine, the answer is that although the drug must have been the decisive factor in a few cases, the evidence points to their number having been very limited. No matter what disease we take, a proportion of any population is always more or less refractory Moreover, malaria may be a very chronic condition, and the presence of parasites in the blood of people who have never developed symptoms and who have never taken quinine is well known. As Bass[13] says: "No doubt many people get infected without ever knowing anything about it; others infected under similar conditions may be ill, and in some cases die." Further, the absence of symptoms in such apyrexial carriers is no guarantee of permanent immunity; in many cases all that is needed to produce an attack is such slight lowering of vitality as is produced, for example, by a chill, a surgical operation, or a broken bone.

2. *Recurrent Malaria.*—I have come across no evidence which leads me to suppose that quinine is any more efficient in preventing relapse than it is in aborting the initial attack (see Table II).

II.—IS THE GENERAL COURSE OF THE DISEASE EVER AFFECTED BY PREVIOUS QUININE PROPHYLAXIS?

A. *The Clinical Evidence and Its Significance.*

The following examples are taken from the literature of the subject:

1. Celli states that both doctors and patients are unanimous that daily prophylactic quinine very frequently aborts primary infections, notably diminishes relapses, and prevents cachexia.[14]

2. So far back as the American civil war the responsible medical authorities[15] state that men were saved from attack and preserved in perfect health for the time being by the use of prophylactic quinine, but that the method was abandoned owing to the shortage of quinine and to the eventual sickness of such men.

3. Neiva (Brazil), who was in charge of 3,000 men in a highly malarial district, found that to obtain the same therapeutic effect the dose of quinine had to be increased in proportion to the length of exposure to infection.[16]

4. Bell (Panama) states that men who were receiving the drug, in comparison with those who were not, under otherwise identical conditions, furnished fewer cases in the proportion of three to four; that such men were, however, more refractory to treatment, had a more prolonged convalescence, and relapsed more frequently.[17]

5. Stitt[18] is of the opinion that quinine in reasonable doses has little or no effect, while those who take it are less amenable to its curative action, and relapse more frequently than those who only take the drug at the time of an attack; he also maintains that quinine prophylaxis does not prevent either anaemia or splenic enlargement, while Jacobson[19] goes so far as to say that although symptoms may be masked for a time, the actual damage is as great as though no quinine had been given.

6. We have seen that in Macedonia quinine alone is quite unable to prevent malaria, while very large doses have to be given in many cases to obtain clinical amelioration. Only a few weeks ago, at a meeting of the Society of Tropical Medicine and Hygiene, a paper was read by Sir Ronald Ross in which details were given of various intensive forms of quinine treatment in chronic cases of malaria invalided from Macedonia. No matter how big the dose or what route was chosen for its administration, frequent relapses still occurred.

After studying this and similar evidence, we are bound to admit that the general course of the disease may be adversely influenced by the previous taking of quinine.

Why does Quinine give Variable Clinical Results?

In ordinary circumstances the key to the problem undoubtedly lies in the constitution of the patient and in his state of health both at the time of infection and subsequently. Under good social conditions intermittent malaria tends to cure itself both temporarily and permanently, and whether quinine be given or not the temperature returns to normal in a few days. If only a little outside help is required to change the balance in favour of the patient, good hygienic conditions, an enthusiastic physician, and a little quinine will suffice either definitely to cure the individual or, at any rate, to prevent his relapsing for a considerable time in the absence of reinfection. If, on the other hand, the resistance of the patient falls short of this, no marked benefit will result.

Clinical evidence favours the view that the course of malaria may be unfavourably affected by the previous taking of quinine, but we have seen that under relatively favourable conditions a small daily dose of quinine tends to prevent clinical malaria, or at all events to lengthen the incubation period. This, however, cuts both ways, and should an individual run the risk of being frequently infected, the tendency will be for him to receive more massive doses of sporozoites as the result of taking prophylactic quinine. Can we wonder if his malaria is of a severer type when it does develop? It is universally assumed that the sporozoites resulting from conjugation in the insect host possess a greater potential capacity for mischief in the vertebrate host than merozoites derived from many generations of asexual multiplication. A European in the tropics who stays out at night and is generally careless with regard to mosquito prophylaxis is much more likely to suffer from, and to be eventually invalided home with, chronic malaria than the individual who is careful in these respects. Experiments on proteosoma

infections in sparrows are said to show that the severity of the disease largely depends on the dose, that is to say, on the number of sporozoites inoculated.[20]

We are now in a position to appreciate the inadvisability of giving prophylactic quinine over long periods, and to realize that the severity of malaria in Macedonia has been increased in some cases by previous quinine prophylaxis.

B. *The Probable Mode of Action of Quinine in Malaria.*

1. *As a Prophylactic.*—Cushny says:

> Quinine differs from most other important alkaloids in acting, not on some specialized form of living matter, but on the general nutrition of almost all forms of protoplasm. Experimental evidence indicates that a number of ferments act more vigorously in very dilute solutions of quinine, while their action is retarded by larger quantities.[21]

It is possible, therefore, that the lytic action of human plasma on malarial parasites is increased when quinine is present in suitable concentration. It is equally possible that too great a concentration of quinine retards this activity; also that the long-continued administration of the drug sets up a tolerance to its presence which necessitates an increase of concentration to get the original effect.

We have previously noted that certain doctors in Mediterranean countries regard 0.2 gram (about 3 grains) daily as sufficient; the few cases I had the opportunity of examining in Macedonia appeared to justify the view that a maximum daily dose for prophylactic quinine exists, and that it is not a very big one. It is also possible that the mechanism about to be considered is not without influence.

2. *The Action of Quinine as a Curative Agent.*—Barlow, as the result of experimental work, thinks that quinine in therapeutic doses does not directly destroy the plasmodium, but tends to poison infected red blood corpuscles in such a way that they are more easily acted upon by the excretory products of the parasite. This results in its liberation before segmentation has taken place and facilitates its destruction. Gametes escape because their less active metabolism does not liberate sufficient toxin to destroy even the quinine-poisoned cell.[22]

This explanation is in harmony with the facts. We know, for example, that quinine, given at the beginning of an attack of intermittent malaria, does not appreciably influence the train of clinical events, but tends to prevent subsequent attacks. It would seem to do this by poisoning infected red corpuscles and accelerating their disintegration, thus making the conditions less favourable for the multiplication of the parasite, which is unlikely to be present in sufficient numbers to produce symptoms when the next attack is due. This would give the resisting powers of the individual time to rally. Should his vitality be insufficient to dispose of all the plasmodia the metabolism of the survivors may be assumed to slow down, and even very large doses of quinine may be unable to poison the red cells sufficiently for the parasitic toxins to destroy them with sufficient speed, the plasmodium reacting by slowing its metabolism still further. In many cases it successfully avoids extermination, and, in the event of the host's vitality being sufficiently lowered, a relapse occurs.

In severe and chronic cases resulting either from massive infection or from the feeble resisting power of the individual, or from a combination of the two, large doses of quinine are usually given over long periods; according to the above theory, the poor results obtained would be largely due to an increased tolerance of the red cells for quinine.

Both clinical and theoretical considerations compel us to admit that the general course of the disease may be noticeably affected by the previous taking of quinine, and that the sum of such influences is frequently unfavourable. So far as the allied armies in Macedonia are concerned, there is every reason to suppose that quinine taken daily over periods of many months has increased the severity and chronicity of the disease in a certain proportion of cases. Taking one thing with another, the available evidence indicates that in Macedonia, at any rate, the disadvantages of quinine prophylaxis outweigh the advantages.

General Summary of Conclusions.

1. Small doses of prophylactic quinine—not too long continued—are of proved utility to the natives of malarial countries, both in the absence of antimosquito measures, and when such measures are incomplete.

2. Quinine may be given with advantage to immigrants under the following conditions:

(*a*) During short journeys when conditions with regard to mosquito prophylaxis are less favourable than usual.

(*b*) An occasional dose after an unusually tiring day.

(*c*) Nervous people may be advised to take an occasional course as an additional precaution in spite of efficient mosquito prophylaxis.

Speaking generally, it may be stated that quinine prophylaxis is usually a bad investment for immigrants in the absence of protection against mosquito bites; taking one thing with another, the practice would in their case seem to be little more than a pious fraud, which has been perpetuated from one generation to the next simply because public opinion throughout the world has never been sufficiently enlightened to encourage the working out of the problem on scientific lines. A few well-planned experiments, carefully and simultaneously conducted in several countries, and these conclusions might have been reached many years ago. We know the experimental method to be at the bottom of all scientific and industrial progress, yet we refuse to admit its very obvious utility in preventive medicine. The following observation applies only too literally to the subject under discussion: "En dehors des sujets dont le contrôl expérimentale est facile, bien peu d'opinions s'appuient sur la logique rationelle. Sur l'interprétation de faits au fond assez clairs, mais que n'étayent pas des expériences suffisamment tangibles, le désaccord est complet."[23] Surely this lamentable state of affairs cannot continue much longer. The experimental evidence exists, but unfortunately its neglected fragments lie embedded in a very extensive literature, much of which is of little value owing to lack of detail and to the impressions of the writers being uncontrolled by clinical experiment.

APPENDIX.

Although the difficulties in the way of efficient mosquito prophylaxis in non-immune armies operating in highly malarial countries are very great, the failure of quinine prophylaxis shows that more serious efforts must be made to overcome them. A few methods of procedure are therefore mentioned, and their value briefly discussed.

A. *The Destruction of Mosquito Larvae.*

1. *Subsoil Drainage.*—This is the ideal method, but finance and labour difficulties militate against its general adoption. In Panama, where both money and labour were available, this method was little used, because the engineering works constantly interfered with the drains.[24]

2. *The Oiling of Surface Water.*—In Panama the system of oiling seems to have been perfect, the whole area for about half a mile round all dwelling places being oiled once a week so thoroughly that all mosquito larvae were killed.[24] The method is obviously good when sufficient oil can be obtained.

3. *The Piping of Streams.*—In ravine country, when mosquitos breed in the pools associated with fast-running but temporary streams, such streams may be piped with advantage within half a mile of camps.

B. *Mechanical Prophylaxis against Mosquito Bites.*

In countries where the reduction of mosquito larvae is difficult the importance of mechanical prophylaxis can hardly be exaggerated. The question will be briefly considered under the following headings:

1. *The Screening of Dwellings.*—In the canal zone all houses occupied by Americans had double doors, the windows being protected with copper-bronze screens—18 mesh to the inch. Orenstein[25] concludes that properly screened dwellings alone can be depended upon to reduce by at least one-third the malaria incidence in a locality where malaria is endemic.

2. *Net Prophylaxis.*—Stott[26] and others have emphasized the great value of supervised net prophylaxis for soldiers.

3. *Veils and Gloves with Gauntlets.*—These have been employed on sentry duty, etc. If properly used, such methods should be fairly effective, but adequate supervision is obviously difficult or impossible.

4. *Essential Oils.*—Oil of citronella, etc., either pure or in the form of ointment, has been tried for men on night duty, but without much success. According to Celli and others, such methods have a very restricted action.

5. *Night Work.*—The employment of African or Greek troops for sentry duty and all forms of night work during the summer and autumn months would seem to be worthy of serious consideration. After going carefully into the matter, the advantages might be found to outweigh the disadvantages.

6. *Education.*—The last, but certainly not least important, method is the education of officers and men as to the habits of the mosquito and the means of avoiding infection. Pamphlets, posters, lectures, lantern slides, cinema films, all have their place according to circumstance and opportunity.

In conclusion, I should like to thank my brother, Captain H. A. Treadgold, R.A.M.C., for valuable assistance.

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INTERLOBAR EMPYEMA AND OTHER SURGICAL COMPLICATIONS OF THE THORAX.*

BY

WALTER BROADBENT, M.A., M.D., F.R.C.P.,

MAJOR R.A.M.C.T.,

PHYSICIAN TO THE ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.

EMPYEMA is the commonest complication in the thorax needing surgical treatment. In most cases it is quite easy to diagnose, as it occurs after pneumonia; an increasing rise of evening temperature, with morning remissions and dullness and silence at the base of the lung, with displacement of the heart, pointing definitely to it; but, in quite a number of cases, matters are not so simple.

In rare instances there is no history of pneumonia. This is more common in poor children with bad mothers. I can recollect instances of children being brought to the out-patient department with a chest half full of pus who have not been a day in bed. They have had a cough for some time, are short of breath, and have lost flesh. I have never seen it in better class children.

In an adult it is very rare. About five years ago I was asked to see a shopkeeper's wife who for some weeks had had night sweats, with a temperature of about 100° F. each night and 97° in the mornings. There had been no acute illness, and there was very little cough and no sputum. The suggested diagnosis was phthisis, but no physical signs had been found. The upper lungs were normal, but there was dullness and silence below the angle of the right scapula, and the heart was slightly displaced to the left. My diagnosis was pleural effusion, probably tuberculous, but on inserting a needle pus was found.

Difficulties may occur from the situation of an empyema; it is not altogether uncommon between the lobes of the lungs, where it is often undiagnosed. If untreated such an empyema may burst into a bronchus, and after weeks of coughing, sometimes of fetid sputum, may clear up, or chronic bronchiectasis may result.

CASE I.

A man, aged 47, was admitted under me this spring. He had had left-sided pneumonia six or seven months before, but had recovered and been working at Newhaven until shortly before admission. He had a severe cough and a good deal of expectoration; the temperature was 100° at night. There was dullness in the second and third right spaces in front and diminished resonance below; bronchial breathing at the apex, distant tubular breathing in the second and third spaces, weak breathing below, with coarse crepitations. Over the right back breathing was bronchial and rather weak in the upper half, but there was no dullness. The left chest was normal except for some rhonchi.

The previous pneumonia had been on the left side and was too long ago to count, but I thought the case was one of interlobar empyema. A needle was introduced in the second space, over the dull area, that afternoon without getting pus.

Owing to an attack of influenza I did not go up to the hospital again for a fortnight; by that time Captain Prowse had examined the man with *x* rays, and reported a large abscess cavity in the upper part of the right side of the thorax rather more than half filled with fluid, on which waves could be seen when the man was shaken. In the meantime the patient was coughing up large quantities of sputum, and, when I saw him again, all dullness had disappeared and breath sounds were almost normal over the right upper chest. He had coughed up the whole empyema.

These interlobar empyemata may burst into the general pleural cavity. Of this I have seen three cases.

CASE II.

A youth, aged about 18, had a very severe pneumonia, implicating both lobes of the left lung and part of the lower lobe of the right. His temperature came down gradually for ten days, and then began to rise in a hectic manner. The left chest remained dull, but tubular breathing and crepitations could be heard all over. I could not detect any special dullness over the interlobar area. One day his temperature and pulse-rate both fell and he said he felt better, but I was surprised to find a large area of absolute dullness and silence at the left base, where the day before had been breath sounds. On putting in a needle pus was found, and at the operation there was a good pint of it. I believe that his empyema was originally interlobar, and, when it burst into the general pleural cavity, the relief of tension caused the fall of pulse-rate and temperature.

CASE III.

A soldier, admitted under me last autumn with dullness from the spine of the left scapula down to the base. A needle drew off pus. Major Buck operated in the usual situation and found very little pus. A few days later the temperature was still high and the man was worse. I then found that the lower part of the back was slightly resonant, but just below the level of the spine of the scapula there was an area of absolute dullness about three inches in depth. An aspirator inserted here withdrew much pus, which, however, reaccumulated, and Major Buck removed a portion of the fourth rib between the scapula and the spine, and opened a large empyema between the upper and middle lobes of the lung. The operation was one of some difficulty owing to the depth of muscle. In this case the original empyema was evidently interlobar and some of the pus had leaked down over the lower lobe, where it was found at the first operation.

CASE IV.

In this case an operation for empyema of the right side of the chest in a child set free only a very small quantity of pus, but a few hours later a sudden gush of quite half a pint of pus soaked the dressings. This must have come from between the lobes.

My father, Sir William Broadbent, described three cases of interlobar empyema in the *Practitioner* in 1905.

In the first pus made its way to the surface above and just outside the left mamma, and the patient made a good recovery.

In the second several unsuccessful aspirations had been made in the lower part of the right chest before he saw the case. It had been noted that breath sounds could sometimes be heard lower on the right front one day than the day before. This led him to suspect interlobar empyema. He found a band of dullness above the spine of the scapula and in the apex of the axilla. Pus was found on passing in a needle high up in the axilla. A piece of rib was removed in this situation, and half a pint of pus was evacuated, with rapid recovery.

The third was a boy, aged 10, who had a left-sided influenzal pneumonia spreading from base to apex. After a crisis on the ninth day, the temperature assumed a suppurative type. The doctor, finding dullness on the whole left base up to the spine of the scapula, absence of vocal fremitus and marked œgophony, put in a needle in three different places, but without success. He noted that the upper part of the lung was becoming duller and more silent. When seen by my father there was absolute dullness with no vocal fremitus or resonance or breath sounds from the apex down to the fourth space, whereas the lower part of the chest in front was comparatively resonant. At his suggestion a needle was put in at the lower edge of the pectoralis with the arm at right angles to the chest. A whole pint of pus was withdrawn. After operation at the site of puncture, a large collection of sloughs came away, and the boy ultimately made a good recovery.

When much pus collects in an interlobar fissure the lower lobe of the lung is so compressed that it becomes dull and airless, leading to the belief that there is an ordinary empyema, until exploration in the usual areas finds no pus. In the last case mentioned both upper and lower lobes were so compressed.

The characteristic of interlobar empyema appears to be a very dull band, either in the second and third spaces in front or just below the spine of the scapula behind. As a rule, there is much diminished resonance over the lower part of the chest, but not the flat dullness of the band of fluid, and breath sounds are very weak and usually absent at the base. The best place to insert a needle is the

* Read before the Medical Society of London.

second or third space in the anterior axillary region, with the arm extended above the head.

Even clear fluid may be confined between the lobes. Quite recently I saw a child with a high evening temperature in whom the physical signs were very similar to those of the last case mentioned, and two needles had already been inserted in the lower part of the chest without result. I put in a needle high up in the axilla and was surprised to find clear fluid, of which ten ounces were withdrawn. Microscopically, lymphocytes were present in abundance; the effusion was probably tuberculous.

A very rare position for an empyema is between the mediastinum and the lung. I have only seen one case:

CASE V.

An elderly gentleman had a very severe influenzal pneumonia of the left lung, during which he was desperately ill. He had a good deal of pleurisy over the left lower lobe. After a fall by lysis the temperature rose again, and the lower lobe of the lung, which had appeared to be clearing, became dull and silent, but no pus was found by exploration. After some days he suddenly coughed up a quantity of pus, and continued to do so, the temperature meanwhile remaining hectic, and the lung dull and silent. The patient was then seen by Sir William Osler, who found a strip of resonance about three inches broad just to the left of the vertebral column over the angles of the sixth, seventh, and eighth ribs. He pointed out that, as the patient was spitting up pus, there was probably a pyo-pneumothorax, and he had a needle put into the resonant area just external to the angle of the eighth rib. Pus was at once obtained. Later a piece of rib, just beyond the angle, was resected, and a large empyema opened, which extended forward to a depth of eight inches, but was bounded externally by the lung, which was completely adherent to the parietal pleura.

In this case the pressure of the pus had collapsed the adherent lung and rendered it absolutely dull and silent. To take a different complication:

CASE VI.

A man was admitted to hospital under me, having had a bad cough for ten days and having been in bed for four days. He looked very ill, and his temperature was 102° to 103° F. He had signs of bronchopneumonia of the right middle and lower lobes, tubular breathing being most marked between the middle of the scapula and its angle. The numerous crepitations were coarser than those of lobar pneumonia. He was very thin, and myoidema was obtainable in unusually striking degree.

Three days later he spat about an ounce of blood, and the day after his sputum became most offensive. A small patch of cavernous breathing could then be heard in the centre of the tubular area. There was no history of any possible foreign body having been inhaled. A radiograph taken by Captain Morton showed a round abscess cavity surrounded by inflammatory thickening at the level of the sixth rib.

My corresponding surgeon was anxious to attack this, but my small experience of operation for abscess of the lung was so unfavourable that I decided to treat it medically by inhalation of creosote, carbolic, and iodine from a Burney Yeo inhaler for several hours a day. The result was complete cure in about six weeks, cough ceasing, physical signs all clearing up, and the man putting on over a stone in weight.

Another interesting case was one admitted to St. Mary's Hospital when I was house-physician in 1894.

CASE VII.

A soldier who had been spitting blood for a fortnight and complained of pain in the right side was found to have impaired resonance below the angle of the right scapula. Breath sounds were good down to the angle, but diminished below with fine crepitations; vocal resonance was increased. The right front was normal. The haemoptysis increased and his sputum consisted of nummulated sticky masses of bright red blood. No tubercle bacilli could be found nor cancer cells. In six weeks he lost 1½ st. in weight. Signs in the chest had greatly increased. On the right front dullness began at the fifth space in the nipple line, and ran to above this level in the axilla. Breath sounds were diminished below the second space and entirely absent over the dull area. The right back was dull from the middle of the scapula downwards, there was some friction in the upper part, silence below. The heart was not displaced to the left, the apex being within the nipple line. Exploration of the back several times yielded no fluid or pus. The temperature was irregularly raised from 99° to 102°, but not of a hectic character. As the heart was not displaced the case was considered one of malignant disease of the lung. In another month the right side of the chest was dull up to the third rib and the spine of the scapula.

Post mortem a large ragged abscess was found in the front part of the middle and lower lobes of the lung into which large bronchi opened. The abscess was in contact with the chest wall as far as the mid-axillary line. Behind that, over the whole back, inflamed lung was adherent to the chest wall, the lung being two or three inches in thickness, which accounted for the exploring needles failing to reach the pus. Further, an abscess of the right lobe of the liver was found which projected through the diaphragm, and on examining the large intestine typical recently healed ulcers of dysentery were seen.

The course of events in this case had evidently been dysentery, tropical abscess of the liver, which burst through the diaphragm and led to abscess of the lung. The lesson to be learnt is that exploration should be tried in front of the chest when no fluid is found at the back. This was illustrated by a case under my care quite recently.

CASE VIII.

The patient was a soldier who had had a long illness with continued pyrexia and occasional attacks of diarrhoea. The stools had been found negative to typhoid, paratyphoid, and dysentery. There was dullness and silence over the lower half of the right chest, back and front. The liver was felt an inch below the costal margin, and appeared rather more enlarged towards the middle line, where it was also tender. I failed to get fluid by a needle inserted into the back of the chest, but in the anterior axillary line I drew off a pint of chocolate-coloured pus, typical of hepatic abscess. Colonel Jowers subsequently opened a large abscess in the upper part of the liver, and the man is doing well.

The next case was supposed to be an empyema of the right side of the chest, but needles had been put in in four different places without obtaining any pus before I saw him.

CASE IX.

The man looked very ill, and had been running a hectic temperature for a couple of weeks. The back of the right chest was dull up to three inches above the angle of the scapula. Breath sounds were absent and vocal resonance was much diminished. In front of the right chest there was dullness from the fourth rib downwards external to the nipple line, but, between the nipple line and the sternum, instead of the usual liver dullness, there was an area of tympanitic resonance. On percussing over this with two coins a loud bell note could be heard with the stethoscope, and the same bell note could be heard as far as the left anterior axillary line, and down to the umbilical level. On rolling the man over on to his right side most of this tympanitic area to the right of the sternum was replaced by the absolute dullness of fluid. Obviously here was a gas-containing cavity, and the diagnosis was subphrenic abscess due to perforated duodenal ulcer. A needle passed deeply into the right sixth space in the tympanitic area immediately drew off foul-smelling pus. After operation the patient made a slow recovery.

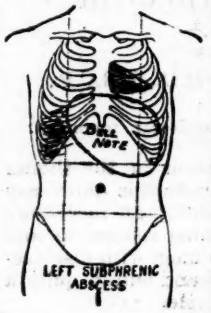


FIG. 1.

By a singular coincidence, since the meeting was adjourned, a case has been sent into hospital under me as pneumonia, because there was tubular breathing and some fine crepitations over the lower half of the right back with a temperature of 102°.

CASE X.

On listening to the front of the right chest breath sounds were fairly normal down to the level of the nipple, below which they ceased abruptly. On percussion resonance was good down to the fourth rib, but hyper-resonant below over the liver area. On tapping one coin on another a bell note could be heard from the fourth rib down to the umbilical level in the mammary line. The edge of the bell note area curved upwards to an inch above the umbilicus, and passed three inches to the left of the middle line, crossing the left costal cartilages, and then back across the sternum, about an inch below the level of the mamma. External to the right mamma the bell note area extended beyond the posterior axillary line round to the lower part of the back of the chest. The heart was pushed upwards and outwards, the apex beat being in the fourth space, two inches outside the nipple. It was impossible to feel anything in the abdomen itself as it was kept so rigid. The diagnosis was, of course, a right subphrenic abscess. A needle inserted in the eighth space in the anterior axillary line brought away foul gas and thin fetid pus. The same evening a portion of the tenth rib in the mid-axillary line was removed and a large amount of pus and gas let out. When this had been done an irregular hard mass could be felt in the right side of the abdomen, about the umbilical level, which might have led to further operation if the condition of the patient had not been so bad. Unfortunately the man died two days later.

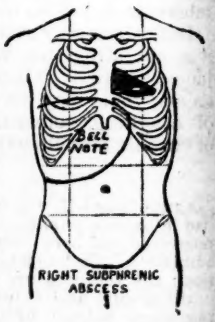


FIG. 2.

At the *post-mortem* examination a perforation of the duodenum was found, ¼ in. in diameter, which had thick edges, as if of some weeks' standing. The abscess was limited below by

adhesions of the colon and edge of the liver to the abdominal wall with thick inflammatory tissue; this was the hard irregular mass felt at the operation. The falciform ligament formed the left limit.

A subphrenic gas-containing abscess under the left wing of the diaphragm is caused by perforation of a gastric or duodenal ulcer with a slow leak of the stomach contents, so slow that there is often no history pointing to ulcer. The abscess is limited below by adhesions of the great omentum and the front of the stomach to the abdominal wall, to the left by the spleen and gastro-splenic omentum. On the right it is bounded by the falciform ligament of the liver, which, as the abscess enlarges, is pushed very much to the right of its normal position, even to the right nipple line, as in the first case described. Abscess under the right wing of the diaphragm is much rarer, and is more usually due to inflammation of a retrocolic appendix causing an abscess communicating with the colon than to a perforated duodenal ulcer. Its boundaries are by adhesions of the edge of the liver, the transverse colon, and the omentum to the abdominal wall, the mesocolon, and the falciform ligament, which in this case is pushed well over to the left of the middle line. The gas evolved in these foul abscesses makes the area over them tympanitic, and the bell note is heard on the use of two coins.

The pressure upwards of the diaphragm and the inflammation invariably cause changes at the base of the lungs. With gastric ulcer it is the left lung which is affected; with duodenal ulcer sometimes the left and sometimes the right. At first a pleural friction is very often heard over the lower part of the lung, usually at the back, but sometimes in front as high as the fifth rib. In a case of perforated duodenal ulcer where there was no vomiting, this friction over the right lower front led to a few hours' hesitation as to whether it was only a case of diaphragmatic pleurisy, but commencing loss of liver dullness soon settled the diagnosis. The friction is usually followed by adhesion of the pleural surfaces and progressive collapse of the lung, or by a low form of pneumonia. In a few cases there is a clear pleural effusion, and instances have occurred where, a needle having been inserted and clear fluid withdrawn, an accidental push of the needle has sent it through the diaphragm, and the clear fluid has been followed by pus. For some reason it is very rare indeed for pus to form above the diaphragm in these cases. The usual condition is for the lower half of the back of the left chest to become quite dull and silent. The temperature is hectic and suggestive of empyema, and the left base is suspected. But, on examining the heart, instead of finding it displaced to the right, its apex beat will be found external to the left nipple and up in the fourth space, owing to the pushing up of the diaphragm, and there will be a large tympanitic area from the fourth rib downwards.

CHOLEDOCHO-ENTEROSTOMY FOR CONSTRICTION OF THE COMMON BILE DUCT FOLLOWING A PERFORATED DUODENAL ULCER.

By W. A. SNEATH, M.B., Ch.B., M.R.C.S.,
LATE HOUSE-SURGEON AT THE DREADNOUGHT HOSPITAL, GREENWICH.

THIS case is of interest as a rare sequel of perforated duodenal ulcer.

A German, aged 54, was admitted to the Seamen's Hospital, Greenwich, under the care of Mr. E. Rock Carling, on December 14th, 1912. The history was that he had been operated upon in Bremen in June. He stated that bile drained from the wound for several weeks; the flow ceased towards the end of October, when he was discharged. When he started work an incisional hernia developed in the epigastrium, and it was for this he came to the hospital.

Condition on Admission.

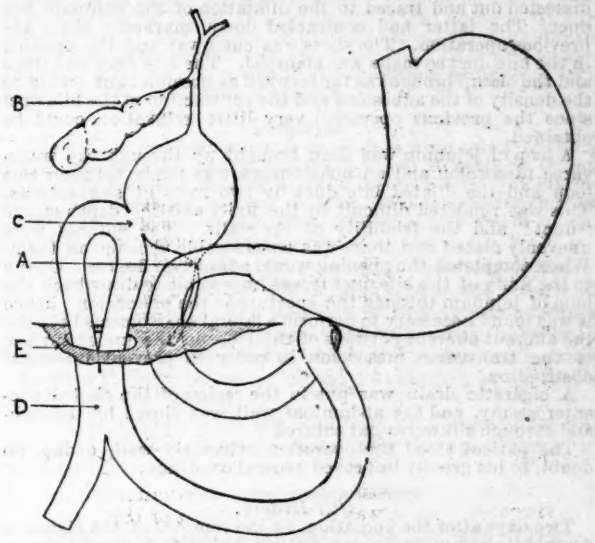
He was emaciated and slightly jaundiced, his appetite was capricious, and he had a special distaste for protein and fatty foods. There was a healed scar in the right iliac fossa and a transverse scar running from the tip of the ninth costal cartilage across the right rectus muscle to about two inches beyond the linea alba; it was stretched, and near the costal margin was superficially ulcerated. When the patient strained a large ventral hernia, the size of a football, protruded through the cut recti muscles. The opening in the latter measured 3½ in. from above downwards and 6 in. from side to side. At the right margin of the scar was a depression, apparently at the place where the abdominal cavity had been drained. There was some thickening and induration of the wound, and more deeply could be felt a vague resistant tender mass passing backwards into the right loin. The faeces were clay-coloured and contained no bile. The urine contained bile; no sugar was present.

The resistant mass on the right side increased, and the jaundice became more pronounced. The temperature rose to 100° F., and five days after admission a sinus formed at the side of the depression in the upper scar, and large quantities of bile escaped. The jaundice rapidly disappeared, but the faeces still contained no bile. After some days the sinus closed, but it opened again subsequently. Consequently, on January 2nd, 1913, Mr. Carling decided to operate.

First Operation.

An incision was made along the upper transverse scar. The omentum, which was adherent to the sac of the hernia, was dissected off and found to be tucked up over the front of the liver. After this had been separated the transverse colon, which was also adherent to the liver, was drawn down. At this stage some coils of small intestine adherent to the sac of the hernia had to be repaired after damage in detaching them.

The biliary sinus was then dissected out and traced downwards and backwards, where it entered a large cystic swelling situated deeply in the right loin on the outer side of the duodenum. This was opened, and 6 oz. of thick, viscid, green bile escaped. The wall of this swelling was lined by mucous membrane; on further investigation it proved to be a dilatation of the common bile duct; the gall bladder was fibrosed and contracted, and contained a small quantity of glairy mucus only. On dissecting out the cystic duct a small quantity of non-odorous, thick yellow pus was discovered between the first part of the duodenum and the liver. The pylorus was adherent to the neck of the gall bladder. There were other adhesions between the omentum, small intestines, and stomach, but these were too numerous to separate.



Diagrammatic schema showing the dilated common bile duct and the site of constriction of the duct. A, Site of obliteration of common bile duct; B, fibrosed gall bladder and obliterated cystic duct; C, choledocho-enterostomy; D, entero-enterostomy; E, transverse mesocolon.

The opening in the dilated common bile duct was brought forwards and sutured to the peritoneum at the right margin of the wound and a drainage tube inserted into the cyst. A tube was also sutured in the gall bladder, and cigarette drains were put above and below the cyst, on account of the escape of bile that occurred during the manipulations. The sac of the hernia, along with the adherent skin, was cut away, and the margins of the neck of the sac drawn together by strong silk mattress sutures. The skin wound was closed by silkworm-gut sutures. The operation was attended by a good deal of shock.

After-History.

The tube in the gall bladder was removed the next day as no bile was draining through it; the upper cigarette drain was removed on the second day and the lower drain on the fifth day. Bile drained through the tube in the dilated common bile duct freely (3x a day). The wound was kept dry by draining the bile away with a Sprengel's pump. The wound healed very well and the deep sutures held perfectly. After the operation the faeces continued to be clay-coloured, and the sinus showed no attempt to close.

On thinking over the problem which the case presented, it seemed clear from the many peritoneal adhesions present that there had been a general peritonitis, probably of perforative origin. The lower incision in the right

iliac fossa pointed to it being appendicular, but the history that the patient gave of bile draining from the upper wound for several months suggested that it either had something to do with the gall bladder or the second part of the duodenum. From the huge dilatation of the common bile duct it was concluded that there must be some blockage of the common bile duct, and this could only have arisen from an impacted gall stone or from a perforated duodenal ulcer. The most likely explanation of the condition was thought to be that there had been a perforated duodenal ulcer the cicatrix of which had constricted the common bile duct. The local inflammation around the gall bladder had at the same time involved and obliterated the cystic duct, so that the gall bladder had not yielded to the pressure of the secreted bile.

A letter from Dr. Sattler of Bremen subsequently confirmed these surmises. He stated that he operated upon the patient on June 12th, 1912, for a perforated duodenal ulcer with general peritonitis. The surroundings of the ulcer were very necrotic and there were many adhesions to the stomach and gall bladder; the peritoneal cavity was full of pus and bile, so that a counter-opening for drainage was made in the right iliac fossa.

Thus it was evident we were dealing with a case of constriction of the common bile duct following a perforated ulcer of the duodenum. As there was no bile entering the intestine it was decided to endeavour to construct a new channel for it by making an opening between the dilated common bile duct and the small intestine.

Second Operation.

On January 23rd, 1913, a vertical incision was made through the outer margin of the right rectus muscle. The sinus was dissected out and traced to the dilatation of the common bile duct. The latter had contracted down markedly since the previous operation. The sinus was cut away and the opening in the bile duct so made was clamped. The bile duct was freed and the clamp brought as far forward as possible, but owing to the density of the adhesions and the contraction of the bile duct since the previous operation very little relaxation could be obtained.

A loop of jejunum was then brought up through the transverse mesocolon and an anastomosis was made between this loop and the dilated bile duct by two rows of silk sutures. This was rendered difficult by the fixity and the depth of the "duct" and the friability of its walls. The sutures were unevenly placed and there was considerable tension on them. When completed the opening would admit two fingers. Owing to the fixity of the bile duct it was impossible to draw back the loop of jejunum through the aperture in the mesocolon; hence it was found necessary to perform a lateral anastomosis between the afferent-efferent portions of the loop on the under surface of the transverse mesocolon in order to prevent intestinal obstruction.

A cigarette drain was put in the region of the choledocho-enterostomy, and the abdominal wall was closed by through-and-through silkworm gut sutures.

The patient stood the operation extremely well, owing, no doubt, to his greatly improved general condition.

After-History.

Two days after the operation, on the removal of the cigarette drain, bile was noticed coming along the track, but as the faeces contained bile it was obvious that some bile was finding its way into the intestine.

The condition of the patient at this time gave rise to anxiety. He was vomiting freely, the temperature was 101° F., and the pulse 120. A drainage tube was again put in, and shortly afterwards, besides bile, the discharge contained digestive juices. The skin around the sinus rapidly became excoriated, but this was controlled by bismuth and paraffin. The patient became emaciated, the faeces were pale and fatty, and the appetite poor.

After six days the amount of bile and digestive juices escaping gradually diminished and the appetite rapidly improved. The stools became darker and he began to put on weight.

At the end of a fortnight the discharge ceased, the sinus rapidly closed, and the faeces became normal in colour and content.

On March 3rd, when the patient was discharged, he looked extremely well. The abdominal wall was quite strong save at the right margin of the transverse incision where the drainage tubes were at the first operation.

The size of the hernial opening and the difficulty of dealing with it suggest the inadvisability of transverse division of the recti in suppurative conditions which preclude adequate suture.

Although a sinus obviously formed at the site of the choledocho-enterostomy owing to the difficulty of adequately suturing the anastomosis, it healed rapidly and did not interfere with the efficiency of the new passage.

An account of constriction of the bile ducts following the cicatricial contraction of a duodenal ulcer is given by Moynihan in *Duodenal Ulcer* (1910). He describes two conditions:

1. When the ulcer was situated near Vater's ampulla, and constricted both the common bile duct and the pancreatic ducts.

2. When the common bile duct alone may be involved as it runs behind the first and second parts of the duodenum.

Details of eleven cases of the first class are given, and of five cases of the second class, of which one was his own. No case is recorded in which the constriction followed a perforation of a duodenal ulcer. The cases recorded are all of the very chronic type of ulcer, in which there is marked induration around the base.

The case described here falls in the second group of cases, in which the common bile duct alone was involved. Since the ulcer perforated into the peritoneal cavity, and not into the retroperitoneal tissue, the ulcer must have been situated in the free part of the duodenum—that is, in the first or at the junction of the first and second parts.

The fact that bile was present in large quantities in the peritoneal cavity suggests that the ulcer had perforated through the bile duct in addition to the posterior wall of the duodenum. Whether the bile duct was caught in the sutures which were used to close the ulcer, or whether the constriction followed the cicatrization of the ulcer, is not clear. The fact, however, suggests that in these cases great care should be exercised in suturing the perforation lest the bile duct be involved.

In this case it was impossible to perform an anastomosis between the bile duct and the duodenum owing to the numerous adhesions around the latter. The comparative ease with which the anastomosis can be performed by bringing a loop of jejunum through the transverse mesocolon, and the perfectly satisfactory result ultimately obtained, points to choledocho-jejunostomy being the operation of preference in these cases.

My best thanks are due to Mr. E. Rock Carling for permission to publish this case, and also for the kind assistance he has given me in reporting it.

A CASE OF HAEMATIDROSIS.

BY

CHARLES T. SCOTT, M.B.CANTAB.,

MARKET HARBOROUGH.

THE following case was brought to my notice by Dr. H. Adcock, of Middleton, Northants, in conjunction with whom these notes are written.

Madeline ——, aged 11 years, a bright intelligent girl of rather nervous temperament, commenced to have abnormal perspirations about four months ago, following a "chill on the liver"; since then they have been gradually growing more and more frequent and severe.

The sweats occur upon the forehead only, from the eyebrows to the roots of the hair, and as far as the outer margins of the orbits laterally; they consist of either clear watery fluid or white froth or bright pink fluid. At the present time they recur at intervals of from a minute to an hour, but during waking hours there is rarely a lapse of more than five to ten minutes, and often there are as many as eight "sweats" in ten minutes.

The "frothy" are the most common variety, accounting for 60 of a counted consecutive hundred; the red variety formed 34 per cent. and the watery 6 per cent. They are most frequent soon after waking in the morning and towards bedtime. The quantity secreted at each "sweat" is from 10 minims to 1 drachm; the secretion invariably appears rapidly, so that in a second the forehead is bathed in sweat, and occasionally it is so rapid that it can be seen as it issues from the forehead in a fine jet and can be heard upon the bedclothes. There is a distinct aura, which takes the form of a faint "sick feeling" in the epigastrium, more severe when a coloured sweat is heralded, so that the child will say, "A pink one is coming now," or "Now there is a frothy one," and her prognosis is invariably correct.

There are no sweats during sleep, but she is frequently awakened by one coming on; as a rule she sleeps for some hours at night with no sweats, but her rest is always disturbed by waking for sweats.

During the last few weeks the salivary glands have been affected in a similar manner to the sweat glands of the forehead, and the same aura may herald a sweat or a "mouthful," which latter may also be pink or white.

For the last fortnight she has had attacks of tonic spasm of the muscles of the arms, so that the hands may become rigid in the "accoucheur's position," or she may involuntarily grasp some object, or the hands may be raised and tightly pressed against the back of the head, causing pain in the back and sides, suggesting hysteria. She has suffered from almost continuous headache, frontal and occipital, since the sweating began. She has had no vomiting.

From a scraping of the skin of the forehead staphylococci and streptococci were grown in small numbers only. Histological examination of the sweat shows red and white blood corpuscles in all three types of sweat, but far more in the "pink" sweat than in the others. Bacteriological examination shows staphylococci, a few streptococci, and a Gram-negative bacillus, apparently of the Friedländer group.

The patient was a premature child (eight months); her mother was badly frightened shortly before the birth by being stabbed in the head by a burglar. She has always been addicted to walking and talking in her sleep, but has had no serious illness. A few years ago tenotomy was performed upon both eyes for strabismus. She has not shown any signs of menstruation. There is no tendency to haemophilia in the patient or her family.

Just a week before the sweats commenced she had a very severe shock. Being particularly nervous of air raids, her parents tried to keep her out of their way; one day a gas explosion occurred in the next house while the child was in bed; she was frightened by the noise.

Examination reveals no abnormal signs in the nervous system, heart, lungs, or digestive system. The urine is copious, up to 6 pints daily, is acid, sp. gr. 1020, and contains no albumin or sugar. The reflexes are very brisk and the fundi healthy.

The case would appear to be one of an unusual type of functional disturbance consequent upon the shock of the explosion. It has not hitherto proved amenable to treatment.

INTERMITTENT HAEMATEMESIS FOLLOWING ON AN INJURY TO THE CHEST.

BY

CAPTAIN A. H. D. SMITH, M.B., CH.B.EDIN., M.C.,

ROYAL ARMY MEDICAL CORPS.

THE interesting point about the following case is that there were no symptoms of any sort until the patient was injured in 1915. The haemorrhages have all taken place after excessive exertion. Apart from the discomfort and fright caused by the haemorrhages he is in no way handicapped by the condition.

History.

Private K., aged 39, consulted me on March 4th, 1918, on account of haematemesis. In October, 1915, when a cavalryman, he was kicked in the precordial region by a horse. He attended hospital for eight weeks as an out-patient. As far as he knows the ribs were not broken, but he was in strapping for the whole eight weeks. He was said to be suffering from a severe contusion of the chest; there was no vomiting or spitting of blood after the injury, and beyond pain there were no symptoms of any sort; previous to the injury he was quite well, and had been training for service overseas since June, 1915.

Before enlistment he was in extensive business as a bookmaker. Both his parents are alive and well; there is no history of heart disease, lung disease, or apoplexy in the family. He has three children alive and well; his wife is healthy, and there have been no miscarriages.

The patient's history is as follows: He has always enjoyed excellent health; there is no specific history. For many years he was a heavy spirit drinker, on occasions drinking as much as one and a half bottles of whisky a day, and he averaged three-quarters of a bottle of whisky daily for ten years. Some three years ago he consulted a medical man, who told him he had a diseased condition of the liver, and advised him to give up spirit drinking; since then he has been for all practical purposes a total abstainer.

Since the injury he has suffered from intermittent precordial pain; about every six months he has had attacks of haematemesis. The attacks come on suddenly without warning, usually during violent exertion. About half a teacupful of blood comes away with a gush; there is no pain at the time but for a short time after the vomiting he has difficulty in breathing. In the intervals between the attacks he is quite well, but since the accident he has suffered from insomnia.

On February 27th, 1918, while walking up a slope against a very strong wind, he found difficulty in breathing, and blood suddenly rushed into his mouth. Again, on March 3rd, while walking sharply uphill, the same thing happened, only in this case the blood was clotted. He was short of breath for some time after the attack, but was able to walk four miles home and carry on his work next day.

Physical Examination.

Respiratory system: Nothing abnormal found; no evidence of old fracture of ribs.

Circulatory system: Nothing abnormal; no thickening of vessels; no varicose veins.

Nervous system: No objective symptoms.

Abdomen: Much tenderness on palpation over liver; this organ (by percussion) decreased in size; spleen also tender, but not as tender as liver; no history of jaundice; nothing abnormal found otherwise.

Genito-urinary system: No abnormal condition discovered; urine normal.

Haematopoietic system: Nothing abnormal.

Facilities for a more elaborate examination were absent at the time.

Differential Diagnosis.

The haematemesis has, of course, to be differentiated from haemoptysis. In this case there is no history of cough, or of pulmonary or heart disease. Apart from the injury in 1915 there is no reference to any chest trouble. The patient states that the blood is in his mouth before he has any warning, and that on March 3rd the blood was clotted.

The patient can give no information as to the presence of food in the vomit. There is no history of melaena. The absence of pain in the intervals helps to differentiate from gastric, duodenal, and oesophageal ulcers (peptic). The absence of wasting helps to differentiate from malignant disease. The absence of anaemia is a strong point in excluding ulceration of any sort.

There is no haemophilia or abnormal blood condition; there is no affection of throat or nose which might account for the haemorrhage. The history of excessive spirit drinking spread over many years (confirmed by condition of liver and spleen found on examination) points to the condition being secondary to the hepatic (or splenic) condition.

Treatment.

The patient has been advised to abstain from spirit drinking and lead a normal, active, healthy life, but to avoid all undue exertions, such as rushing upstairs and walking quickly up hills. He has been advised to take his meals slowly and not bolt his food, and to abstain from drinking very warm fluids. No drug treatment has been given.

I think the probable cause of the recurrent haemorrhages is a varicose condition of the veins at the lower end of the oesophagus. The absence of any arterio-sclerosis excludes a small aneurysm. The veins may have been injured by the trauma to the chest, and so an extra strain has been thrown on veins already weakened by cirrhosis of the liver and spleen.

I beg to acknowledge the kindness of Surgeon-General Julian, D.D.M.S. Western Command, for permission to publish this case.

THE PHAGOCYTIC RESPONSE TO THE INTRODUCTION OF BACTERIA INTO CLEAN WOUNDS.

BY W. JAMES WILSON, M.D., D.Sc.,

BREVET MAJOR R.A.M.C.(T.F.).

(From the Laboratory of —— General Hospital, B.E.F., France.)

IN the course of an extensive experience of the bacterial flora of war wounds I have been struck by the small numbers of *B. coli* which are present as the wound tends to clean. Even wounds of the buttock which are repeatedly contaminated with faeces contain after a few days comparatively few *B. coli* although they are swarming with enterococci.

At first I imagined that the explanation of the selective effect of the wound on faecal flora might be that the wound fluids offered an unsuitable medium for the growth of *B. coli*. No doubt this is an important factor, but the following few experiments show that the immunity is an active one, and that the phagocyte plays an effective part in its production.

Experiment 1.—Fate of Living Culture of B. coli Introduced into a Clean Wound.

The patient (R.) had a wound (6 cm. by 5 cm.) of right forearm just below the elbow-joint. On November 23rd, 1917, the wound was granulating, and a swab taken on that date gave a growth

of enterococci but no *B. coli*. On November 22nd a culture of *B. coli* had been made from patient's faeces, and on November 25th 1 c.cm. of a very thick emulsion of the growth was introduced into a small depression of the wound, and films were made at intervals so as to study the effects.

After five minutes a few leucocytes and many *B. coli* were seen. After sixty minutes numerous leucocytes were present, and many of the bacilli were intracellular. After two hours the fluid in the wound had become thicker, stringy, and contained plenty of leucocytes. It was, in fact, becoming purulent. After six hours the majority of the bacilli were intracellular. After twenty-four hours no bacilli could be seen on direct examination of films, but in culture numerous discrete colonies were obtained. After forty-eight hours the wound, which was now quite clean again, showed leucocytes and connective tissue cells in film, but no micro-organisms were visible. On culture *B. coli* was absent, but enterococci were still present.

Experiment II.—Effects of Brilliant Green on Phagocytosis of B. coli in a Clean Wound.

On November 27th, 1917, in the same wound as used in Experiment I, 0.5 c.cm. of a thick suspension of *B. coli* was added, and immediately followed by an equal volume of 1 in 1,000 brilliant green solution.

Films made after five minutes showed leucocytes and numerous *B. coli*; after fifteen minutes more leucocytes and some phagocytosis; after two hours there were still leucocytes and some phagocytes, and after six hours a fair number of pus cells; no bacilli visible. On culture a few *B. coli* colonies developed as well as the persistent enterococci. On November '8th cultures yielded no *B. coli*.

Experiment III.

There was a little saucer-shaped wound (3 cm. in diameter) on the front of the chest, just over the right pectoral muscle. The bottom of the wound involved the muscle fibres. On November 26th, 1917, this wound appeared very clean and no bacteria could be seen on films made from it. The addition of distilled water to the little wound cavity led to the emigration of leucocytes into the cavity, and a loopful planted out yielded four colonies of a long-chained streptococcus; 0.5 c.cm. of a thick suspension of *B. coli*, derived from a culture from the patient's intestine, was added to the wound on November 27th and immediately followed by 0.5 c.cm. of 1 in 1,000 brilliant green solution.

Films made after five minutes showed many *B. coli* and no leucocytes; after fifteen minutes many *B. coli* and a few leucocytes; after two hours some phagocytosis of the *B. coli*. At this stage the edges of the wound were stained green and its cavity contained a clear watery fluid. At the end of six hours the wound cavity was full of yellowish pus; no bacilli could be seen on films made at this stage. Cultures made from the pus yielded a considerable number of discrete colonies of *B. coli* on an agar slope. At the end of twenty-four hours a few *B. coli* were seen in films and cultures were still positive. At the end of forty-eight hours the film showed very few leucocytes, and some of these contained bacilli; the cells present were mainly of the mononuclear connective tissue type. On culture a loopful of wound secretion yielded 100 discrete colonies of *B. coli* on an agar slope.

A culture made after seventy-two hours yielded twenty discrete colonies. On November 30th, a swab was taken from the wound (this yielded about twenty colonies of *B. coli*), and then the wound was moistened with an emulsion killed by heating to 70° C. There was a free exudation of leucocytes, and films showed, at the end of one hour, phagocytosis and bacteriolysis of the cocci; at the end of seven hours no cocci could be seen in the cells or outside them; they had been completely destroyed.

A culture made on agar at this stage yielded no growth. In Experiment III the wound was covered over with a watchglass, and the pus in it remained in its saucer-shaped cavity, and was not lost by adhering to dressings. There was no question, therefore, of the mechanical removal of the bacilli and cocci. The wound was left covered with the watchglass until December 2nd, and when examined then (that is, forty-eight hours after the vaccine was put in) yielded only two colonies of *B. coli* when an ōse was planted out.

Experiment IV.

A gunshot wound of shoulder which was healing offered a suitable little pocket for holding emulsion of bacteria. A swab taken on December 5th, 1917, yielded twenty colonies of streptococci on an agar slope; 0.33 c.cm. of a very thick emulsion of dead staphylococci was introduced into the wound on December 7th. A film made immediately afterwards showed no pus cells but enormous numbers of well-stained cocci. At the end of one hour the great majority of the staphylococci were inside the leucocytes, many of the latter being crammed with them. The staphylococci stained badly, and were evidently being digested. After six hours the majority of the cocci had disappeared, but an occasional leucocyte could be found filled with them. At the end of twenty-four hours little pus was present and no trace of staphylococci except a few intracellular cocci. A culture on agar at this stage yielded seven colonies of streptococci.

Experiment V.

From a wound of the right wrist a foreign body had been removed on December 7th and a clean gutter-shaped wound was left. On December 10th a film showed very few cells and no bacteria. On December 11th a thick emulsion of *B. welchii* was introduced; this was really a vaccine, as the culture contained no spores and had been heated to 70° C. After one hour there was a fair degree of emigration of leucocytes and pronounced phagocytosis; after six hours there was no trace of bacilli.

In a patient with I.C.T. of the right leg the introduction of a thick emulsion of dead staphylococci led to a zone of redness round the ulcer.

CONCLUSIONS.

1. Experiments *in vivo* demonstrate the rapidity with which leucocytes migrate out and destroy micro-organisms introduced into a healing wound.

2. Experiment II indicates that brilliant green momentarily arrests this protective action, but later on, when the dye has been absorbed by the skin, etc., the process goes on. Whether the rapid bactericidal effect of chemical substances on free bacteria compensates for their inhibitory action on the leucocytes is open to doubt.

3. Circular wounds a few centimetres in diameter can in a few hours destroy thousands of millions of *B. coli*.

4. Vaccines introduced into a wound lead to a prompt leucocytic reaction, and this fact might be of service in the treatment of sluggish sores and ulcers.

5. These few *in vivo* experiments would convince the most sceptical of the truth of Metchnikoff's theory of phagocytosis, and confirm what has been long ago demonstrated *in vitro* by Leishman and Wright.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PERFORATING WOUND OF THE HEART: DEATH ON THE FIFTH DAY.

PERFORATING wounds of the heart are sufficiently rare in civil life to justify a record of the following case.

A boy 16 years of age was stabbed with a large pocket knife on April 1st by another boy aged 12, after leaving a cinema performance. Helped by a friend, the injured boy walked about six yards, then collapsed and fell down.

He was conveyed to the local hospital, where I saw him a few minutes after admission. He was very pale, collapsed, and pulseless. There was a vertical incised wound in the third intercostal space immediately to the left of the sternum; there was fairly free venous haemorrhage. Cardiac dullness was completely absent, and the heart sounds were muffled. Pulmonary resonance and the breath sounds were normal, as was the temperature. The wound was cleaned and lightly plugged with cyanide gauze. Half a pint of warm water was given by the rectum.

The next day the patient was comfortable with a temperature of 98° F. The pulse was 112 and irregular; the respirations 17. Cardiac dullness, though less than normal, could be made out. No pericardial friction was heard. On April 3rd the temperature was 101.8° F.; he was flushed, and complained of some pain in the region of the wound. There was no pericardial friction; the heart sounds were still muffled. Pulmonary resonance and breath sounds were normal. On April 4th the temperature came down to 99.4° F. There was less pain, and the patient was altogether more comfortable. Cardiac dullness slightly more than normal; no friction.

On April 5th the temperature rose to 101.8° F.; breathing was short and shallow, and a small patch of pleurisy could be made out at the base of the left lung. Pulmonary resonance was normal, the pulse 110, and the respirations 20.

On April 6th the patient died quite suddenly after drinking a little warm milk.

Post-mortem Examination.—A quarter of an inch to the left of the sternum in the third intercostal space was a clean vertical incised wound half an inch long dividing the cartilage of the fourth rib. There was a vertical wound of the pericardium corresponding to the skin wound. The pericardium was distended with blood-stained serum, and contained one large clot. Pericarditis was marked. An incised wound of the anterior wall of the right ventricle penetrated to the cavity, and a small abrasion and some ecchymosis was found on the septum between the two ventricles. Otherwise the heart was quite healthy. There was a small patch of pleurisy at the base of the left lung,

which was slightly congested. The anterior edge of the right lung was slightly collapsed; otherwise the organ was healthy.

Haemorrhage in this case was slight considering the extent of the injury. The fact that the wound was vertical, in the direction of the fibres of the heart, may account for this; had the wound been transverse, haemorrhage would have been much more free, and the patient would probably have died at once. It is difficult to account for the disappearance of the cardiac dullness. The absence of the physical signs of the pericarditis is noteworthy.

C. F. WIGHTMAN, F.R.C.S.Eng.,
Surgeon, Royston Cottage Hospital.

LOSS OF HEAD IN AEROPLANE ACCIDENTS.

IN the crashes that occurred during the nine months that I have been attached to the Royal Flying Corps it has seemed to me that loss of head was by far the most common cause. I had thought of loss of head in rather a wider sense than Mr. Graeme Anderson,[1] and meant it to include any condition in which the pilot is incapable of acting synchronously. Of course, when a pilot is shot or faints in the air, he can hardly be said to have lost his head; still the effect is the same, in that he ceases to act synchronously. The following seem to me the most usual predisposing causes of loss of head:

1. *Lack of Confidence.*—This explains itself.

2. *Lack of Mental Training.*—I mean the training that enables one to grasp a situation and act immediately (almost reflexly) for the best. Driving a car through traffic or sailing on a crowded river would give such training.

3. *Congenital Tendency.*—Some people are more prone to lose their heads in an emergency than others. These men, who are noticeable on an unexpected night raid or on a torpedoed ship, would require extra training as pilots.

4. *Mental Fatigue.*—This is a very real fatigue during the first hours of flying. Personally, after attempting to send wireless messages on my third or fourth solo flight, I slept for most of the rest of the day, and I am sure that Mr. Graeme Anderson's view of this condition is the right one.

5. *The Influence of Ill-advised Conversation.*—It has often been remarked that crashes occur in epidemics, especially when a new type of machine is issued to a school or when someone has crashed in sight of a number of pupils; there follows a great deal of argument in the pupils' ante-room as to what should or should not have been done, and opinions are expressed many of which are quite erroneous. This results, I think, in pupils losing their heads from a multiplicity of advice.

6. *Insufficient Instruction.*—This is, happily, rare, and is becoming rarer, though it occasionally occurs, especially when pilots are urgently required for some special reason. It must be remembered that the instructor's job is not easy. He has to teach his pupil to fly, and gauge his nervous capacity, confidence, and judgement; to do this he must allow him complete control at all heights, and at the same time be ready at the fraction of a second's notice to take over control in the case of an error in flying or of threatened collision with an early soloist in another machine. Since most instructors in this country are in the air with pupils for about three hours a day, and are encouraged to turn out the largest possible number of soloists per month, I think it is extraordinary that crashes caused by too little instruction are as rare as they are.

7. *Fear (Pure Funk).*—To become mentally paralysed by fear alone is, I believe, very rare. The sense of self-preservation is strong, and seems to me to be stimulated by fear. Personally, on my second solo flight, I lost control and was so frightened that I nearly vomited, but was able to regain control in time to land without damage.

What is wanted, I think, is some quick method of picking out the very worst of the pupils. I am informed that it costs over £2,000 to train a pilot, and those who fail frequently crash at least one machine, value, say, £1,500. If only 2 or 3 per cent. could be eliminated, thousands a year could be saved, more time could be spent on successful pilots, and lives valuable in other spheres could be spared to the country.

J. EATON LASCELLES,
Captain R.A.M.C.(T.), attached Royal Air Force.

[1] BRITISH MEDICAL JOURNAL, January 19th, 1918, p. 73.

A CASE OF SYPHILITIC REINFECTION.

ON March 29th, 1917, a patient was seen by one of us, in conjunction with Mr. Frank Kidd, for a small ulcer on the penis, which he had noticed for four days, coitus having taken place six days and six weeks previous to the appearance of the sore.

The *Spirochaeta pallida* was found in large numbers in the sore; the Wassermann reaction was negative, and in view of this the probability was that the infection took place from the coitus ten days previously. Three intravenous injections of galyl, 0.4 gram, were given, the last on April 15th, 1917. No mercurial treatment was given. The sore healed rapidly and there were no further manifestations of syphilis.

The patient was not seen again till July, 1917, when he was advised to have a Wassermann reaction done. He, however, did not follow the advice, and it was not till February 3rd, 1918, that he again came, as he said he feared he had a recrudescence of the old infection.

On examination there was a small group of herpetic vesicles the size of a threepenny piece on the lower lip, and he had nasal catarrh. The Wassermann reaction was taken and was negative. The patient did not come again till February 16th, when he complained of "swelling of the neck." Examination now showed an erosion of the lower lip covered with a yellowish-grey false membrane with distinct induration around the base and edges. The submaxillary lymphatic glands on the right side were very enlarged and hard, bulging out under the lower jaw (the giant bubo). The *S. pallida* was found in the erosion and the Wassermann reaction was completely negative. The patient gave a history of having kissed a girl about three weeks previously.

The diagnosis of extragenital chancre was made, and the same day an injection of 0.6 gram novarsenobillon was given, followed by three more, each of 0.9 gram, given at weekly intervals; twenty-four hours after the first injection the swelling of the glands had entirely disappeared, and ten days later the sore had completely healed.

This seems an undoubted case of reinfection in syphilis, the following conditions being satisfied. In the first infection in March, 1917, a sore developed on the penis, the *S. pallida* being found in large numbers, and the Wassermann reaction being negative. In the second infection eleven months after, in February, 1918, a sore developed on a different site—on this occasion being on the lip—the *S. pallida* being found in the sore and the Wassermann reaction being negative, thus excluding a diagnosis of chancre redux, chancriform gumma, or indurated secondary lesion of the lip.

P. N. PANTON, M.A., M.B.Cantab.,
Clinical Pathologist, London Hospital.
A. MALCOLM SIMPSON, B.A., M.B., D.P.H.Cantab.,
Surgeon, Out-patients, St. Paul's Hospital.

THE EFFECT OF ULTRA-VIOLET RAYS ON THE SKIN AND EYES.

IT was with great interest that I read the article by Dr. Oscar Holden of Southampton, in the BRITISH MEDICAL JOURNAL of April 20th, p. 454, on the effects of electric arc welding upon the eyes and skin. I should like to know what electrodes were used in this process and the length of time to which the operators were exposed to the light.

For the last two years I have been treating patients, both in military hospitals and in private, with ultra-violet rays. The light is produced from wolfram electrodes, and latterly by pure metal electrodes, and I should like to know what electrodes Dr. Holden used (p. 454). The exposure for wounds varies from one and a half to three minutes—that is, until a definite reaction occurs. For other conditions the time may be slightly increased.

The reddening of the skin, though slight at the end of the treatment, is very much more marked within two or three hours, and particularly so if the patient washes the part treated. An exposure of the back for two minutes at a distance of a foot can cause desquamation at the end of three days. This is not due to the heat produced, as there is only a moderate degree of rise of temperature even when the ray is allowed to impinge directly on or is focussed on the bulb of a thermometer. I have exposed many *x*-ray plates enclosed in light-proof envelopes. Lead seems to be a slight protection. Whether the rays are conducted or

transmitted by glass I know not, though they can certainly be deflected by quartz. An *x*-ray plate covered by a sheet of $\frac{1}{8}$-inch lead, with a hole the size of half a crown in the centre, was uniformly fogged, nor was there any shadow of a metal disc placed directly in the centre of the aperture. I have learnt of lacrymation and conjunctivitis by bitter experience when giving several treatments during a day. I have not yet been able to discover any adequate protective glasses. Lead blue, green, and Crookes's yellow, do not seem to absolutely cut out this particular ray. In spite of the fact that one's eyes are protected by a metal screen placed behind the arc, the ray seems capable of being reflected from the walls of the room in which the treatment is given. Pigmentation of the skin is in some cases very marked.

Harrogate. FREDERICK A. JOHNS, M.B.Lond.

Reports of Societies.

CHOICE OF OPERATION FOR MYOMA OF THE UTERUS.

AT a meeting of the Section of Gynaecology and Obstetrics of the Royal Society of Medicine held on May 2nd, Dr. G. F. BLACKER, the President, being in the chair, Dr. HERBERT R. SPENCER gave an account of two cases of myoma of the uterus treated by total abdominal hysterectomy, in which cancer of the body was present.

Case I was an instance of recurrent cancer in which the growth involved the peritoneum. The recurrent mass was removed, together with the lower end of the right ureter, and the right half of the bladder. The kidney became infected subsequently and was removed. There was a second recurrence, which was inoperable. Death occurred twenty-six months after hysterectomy. In Case II the growth (in an unmarried woman aged 49) had advanced to within 1 mm. of the peritoneum. The patient was well and free from recurrence after five years.

Dr. Spencer declared himself an advocate of total abdominal hysterectomy for myoma. He had never amputated a uterus for cancer of the body, whether complicated with myoma or not. Three experienced gynaecologists, advocates of amputation for myoma, had overlooked cancer of the body as a complication and performed amputation (or, in one case, incision before removal) in 14 out of 18 cases (77 per cent.), and in no case was a five-year after-history given. Two of these three gynaecologists had overlooked cancer of the body uncomplicated with myoma, and performed amputation in 3 out of 12 cases (25 per cent.), 2 of the 3 cases recurring (66 per cent.). Advocates of amputation for myoma needed to take greater care than advocates of total hysterectomy in making the diagnosis of cancer of the body as a complication, and should clamp the uterus before dividing (with the cautery). Total abdominal hysterectomy by Doyen's method, the vagina being opened and severed with the galvano-cautery, was superior to amputation for myoma, in that it lessened the risk from cancer of the body, should it have been overlooked.

In the course of the discussion, the PRESIDENT said that he had seen only one case of cancer of the stump after the supravaginal operation. Most operators considered that they did not get such a good result from total hysterectomy as from this operation, which was both safer and simpler. The number of cases of cancer of the stump was so few that the danger to the patient from the more severe operation of total hysterectomy was greater than the possible chance of the occurrence of cancer. Mr. J. D. MALCOLM said that he always removed the uterus completely except in cases of simple fibroid. Dr. H. RUSSELL ANDREWS thought that cancer of the body would not be overlooked if histories were taken very carefully. A distinct interval of amenorrhoea—eight months to a year—occurring when periods had been profuse, was very suggestive of a new condition. Dr. R. A. GIBBONS thought it important to leave the pelvic floor. Mr. OSWALD DINNICK said that if total hysterectomy were well done convalescence was easy and smooth, more so than in the case of the supravaginal operation. There was no rise of temperature and less danger of sepsis. Dr. LAPTHORN SMITH said that he always did total hysterectomy in suspicious cases.

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY.

THE annual congress of this society was held at the Royal Society of Medicine, London, last week. On the first day the president, Mr. Treacher Collins, read a paper on an experimental investigation as to some of the effects of hypotony in rabbits' eyes. The immediate changes on tapping the eye were found to vary according to the site of the incision. If the anterior chamber were opened, then fluids were found to pass from the anterior surface of the iris; if the posterior chamber were opened, fluids passed into the vitreous from the posterior surface of the ciliary body and from the retina. Colonel Elliot made a contribution to the histology of the trephined disc; Mr. George Thompson spoke on herpes zoster affecting the ciliary nerves; Captain Cruise read a further note on the use of the visor; Mr. Freeland Fergus contributed a paper on vision and work, founded on the results obtained at a recruiting office; Mr. George Young suggested clinical tests for the threshold of light and colour; Captain W. Wallace discussed the dioptric mean in the myopic soldier; Colonel G. McPherson gave a note on the use of glare glasses; and Captain Thomson Henderson spoke on contracted sockets. In the afternoon there was a discussion on plastic operations of the eyelids, opened by Major H. D. Gillies, Messrs. C. Higgens and Harrison Butler, and continued by Major A. W. Ormond, Captain R. Cruise, Mr. M. S. Mayou, and Captain F. Derwent Wood. Of much interest was a method of deepening a shallow lower fornix of the conjunctival socket described by Major Gillies. An epithelial graft was removed from the leg or other suitable place and wrapped round a wax mould of the intended extension of the socket. The conjunctiva was then incised, and the incision extended until the graft-wrapped wax could be buried and sutured beneath the conjunctiva. The graft became an implantation cyst. When time had elapsed for the fixation of the graft the conjunctiva was incised over the cyst, the wax removed, and the pocket formed kept open by suitable shells. The report of the special committee on the conditions affecting the standards of vision in the British army was received. On the second day a visit was made to the Metropolitan Asylums Board Ophthalmia School at Swanley, where a discussion took place on contagious diseases of the conjunctiva. In the evening a clinical meeting was held in London, at which a large number of cases were exhibited, and some novelties in instruments for investigating fields of vision demonstrated. The morning of the third day was devoted to a visit to the National Hospital for Paralysis, Queen Square, where a number of cases were shown by Dr. Kinnier Wilson, Dr. James Taylor and Mr. Leslie Paton, and discussed.

PROPHYLAXIS IN VENEREAL DISEASE.

AT a meeting of the London Association of Medical Women on April 9th, with Lady BARRETT in the chair, Dr. MORNA RAWLINS, in a paper on prophylaxis in venereal disease, distinguished between prophylaxis in general and personal prophylaxis. For general prophylaxis, education of the medical profession, of nurses, and of the lay public was of great importance. Systematic lectures were now given to the general adult population, and especially to the army. Infected persons were instructed at the various clinics. Prostitution was a breeding place of venereal disease, but the Contagious Diseases Acts should be strongly opposed as they gave false security to men. Moreover, the diseases were conveyed more by amateur than by professional prostitutes, and these were not touched by the Acts. To fight prostitution every one must have a living wage. Personal prophylaxis before coitus was known as prophylaxis proper, and after coitus as early preventive treatment. Men were given outfits containing argyrol, or a similar medicament, and calomel, etc., but this treatment was full of fallacies. For women nothing was done. The American navy employed early preventive treatment; after illicit intercourse a rigid course of treatment was enforced. The percentage of venereal disease was very small in consequence, as was also the number of men having illicit intercourse, the enforced treatment probably acting as a deterrent. The time at which treatment was carried out was important; if within eight hours success was practically certain, and disease was usually prevented

even after forty-eight hours. Preventive centres would probably soon be set up all over the country. The speaker asked, in conclusion, whether it was possible or desirable to set up early preventive treatment centres for women also.

Reviews.

THE PARASITIC THEORY OF TUMOURS.

ALTHOUGH the proper function of hypothesis is to furnish a basis for research amongst investigators, nevertheless the etiology of tumours is a subject of such exceptional interest that the publication of Dr. D'ESTE EMERY'S small work entitled *Tumours, their Nature and Causation*,[1] will doubtless prove acceptable to many general readers.

The author has brought together in a succinct manner the different problems in connexion with the biology of new formations as they now present themselves. He himself is impressed with the theory that new growths have a parasitic origin—a somewhat old proposition; for it was formally set out by Ballance and Shattock in 1887 (*Path. Soc. Trans.*, vol. 38). By a parasitic hypothesis is meant, of course, the action of an extraneous virus. The cells of a malignant growth have themselves been regarded as parasitic (by the late Sir Henry Butlin) in the sense that they invade and produce a fatal metastasis in the host. But no advance is made by applying such a terminology to what is actually witnessed, unless some explanation of the altered biological character of the cells is forthcoming.

Dr. Emery would extend the parasitic doctrine to cover not only malignant but benign tumours. Many of the holders of the doctrine, however, will not follow him in this. The great character of a malignant tumour, even though it may be quite minute, is its power of local invasion and dissemination; that of a benign tumour, howsoever large, is the absence of such a property. To many this fundamental difference will indicate a different kind of pathogenesis. Cohnheim's original theory of cell-rests will still appeal to many as satisfactory in regard to some of the forms of innocent tumours, though it has its limits. No adequate explanation can at present be offered, to take an example, for the growth of a simple circumscribed lipoma. The experimental grafting of tumours in the lower animals, the prophylactic immunization of animals, and kindred subjects, are briefly dealt with by Dr. Emery, so that altogether an excellent view may be gained by the general reader, of the present position of knowledge and theory in regard to the subject of neoplasia.

LIPINS.

THE substances extracted from organs and tissues by ether and alcohol may be roughly classified as neutral fats and fatty acids, substances having no relation to fats, such as cholesterol and some pigments, and the fat-like bodies dealt with in the volume under the title of *Lecithin and Allied Substances*, by Dr. HUGH MACLEAN.[2] The word "lipoids" has been used vaguely, and has not been restricted to the fat-like phosphatides and cerebrosides, and as for this reason it is not applicable, the word "lipins," which is also unfortunately not entirely free from confusing associations, is employed by the author for these bodies. They are defined as substances of a fat-like nature, yielding on hydrolysis fatty acids or their derivatives, and containing in their molecule either nitrogen or nitrogen and phosphorus. Of the phosphatides, which Leathes, who wrote the volume on fats in this series, suggested would more conveniently be called phospholipines, lecithin and the closely related kephalin are the best known, while of the cerebrosides, which do not contain phosphorus, there are only two—phrenosin and kerasin.

Dr. Maclean gives a very thorough account of lecithin and of the allied and other bodies reputed to belong to this group, and in doing so has handled a difficult and rather dry subject most efficiently, and in places with flashes of welcome humour. Protagon, described in 1865 by Liebreich and the cause of bitter discussion since, is considered at length, and the author concludes that it is a mixture of cerebrosides and sphingomyelin with traces of other bodies. Similarly, jecorin, carnaubon, and other bodies alleged to be definite lipins, are also adjudged from the available evidence to be mixtures. Throughout the monograph, which is of a high standard and fully worthy of this biochemical series, full due is paid to Thudichum's brilliant but now neglected work, and it is shown that recent work is in many instances only confirmatory of his experimental results. Much research has given barren results in connexion with this subject, and there is little positive knowledge as to the function of lipins. The belief that lecithin can act as an antigen in the Wassermann reaction is disproved by the author's and Dudgeon's experiments, which show that this depends on the presence of an unknown substance, difficult to separate from lecithin, and similarly its curative effect on beri-beri disappears as it is more highly purified.

THE USES OF TUBERCULIN.

IN a paper addressed to the Ulster Medical Society in November last, and now published in book form,[3] Dr. J. R. GILLESPIE, Tuberculosis Medical Officer for county Down, discussed the various methods of using tuberculin, and placed on record his own experiences at the five dispensaries under his control. The actual number of cases treated was not very large, but the percentage of success would appear to have been markedly higher among the dispensary cases treated with tuberculin in the manner recommended than among sanatorium cases and others treated at their own homes. Believing that the conflicting results observed and recorded by other users of tuberculin are essentially due to want of uniformity of method in administration, Dr. Gillespie pleads for a more strictly graduated system both of dosage and of interval between doses, the greatest caution being observed to avoid excessive reaction. With this principle in view, however, it is still absolutely necessary to deal with each case individually, and no hard and fast lines can be laid down for general guidance. A tabulated statement of the cases dealt with during the years 1913–15 inclusive is appended.

NOTES ON BOOKS.

IN *The Happy Hospital*,[4] Mr. WARD MUIR gives a sympathetic account of the life of a military hospital from the orderly's point of view, under such titles as "Problems of a Ward Orderly," "The Orderlies' Recreation Room," "Night Convoys," and so on. If he has any disposition to criticize organization he represses it, although he ventures the suggestion that the employment of male nursing orderlies in military hospitals—he means, no doubt, base hospitals—will some day cease, and tells an amusing story of the reform of the men's mess after a visit from the assistant matron. The work of Mr. (now Captain) Derwent Wood, A.R.A., in the department of masks for facial disfigurement, is described, and a well-deserved compliment is paid to him, and also to the officer in command who helped him to discover what he could do. The most moving chapter in the book is "Transport," and very good it is. From the same publisher comes an Australian detective story, *Many Thanks—Ben Hassett*, purporting to be written by HERBERT DE HAMEL, which contains more cases of mistaken identity to the page than any we remember.

We welcome the appearance of the eighth edition of Professor STELWAGON'S treatise on *Diseases of the Skin*,[5] a well written and scientific manual that has long been valued in this country as well as in America. It is full of practical hints, well up to date, and admirably illustrated. Many references to the literature are contained in its pages; the book may be warmly commended to the general practitioner of medicine as well as to the specialist. The third edition of Professor PUSEY'S

[1] *Tumours, their Nature and Causation.* By W. d'Este Emery, M.D., B.Sc. London: H. K. Lewis and Co. 1918. (Crown 8vo, pp. xx + 146. 5s. net.)

[2] *Lecithin and Allied Substances: The Lipins.* By Hugh Maclean, M.D., D.Sc. Monographs on Biochemistry, edited by R. H. A. Plimmer, D.Sc., and F. G. Hopkins, M.A., M.B., D.Sc., F.R.S. London: Longmans, Green, and Co. 1918. (Med. 8vo, pp. vii + 206. 7s. 6d. net.)

[3] *A Rational Method of Using Tuberculin in the Treatment of Pulmonary Tuberculosis.* By John R. Gillespie, M.A., M.D., D.P.H. Belfast: Graham and Heslip. 1918. (Med. 8vo, pp. 33. 2s. 6d. net.)

[4] Simpkin, Marshall, and Co., Ltd. 1s. 6d.

[5] *A Treatise on Diseases of the Skin.* By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology in the Jefferson Medical College, etc. Eighth edition, revised. Philadelphia and London: W. B. Saunders Co. 1916. (Roy. 8vo, pp. 1309; 356 figures, 33 full-page coloured and half-tone plates. 28s. net.)

Principles and Practice of Dermatology[6] offers the reader a sound general discussion of the subject, and is well illustrated. It affords a considerable contrast in style and outlook to the more ambitious volume on *Diseases of the Skin*[7] by Professor HARTZELL, in which the attempt has been made to cater for medical readers of all classes, informed and uninformed alike. Here much space is given to etiology and pathology, and treatment is naturally considered less fully. The illustrations are excellent, and include no less than fifty-one coloured plates.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE FRIENDLY SOCIETY.

THE thirty-fifth annual general meeting of the Medical Sickness, Annuity, and Life Assurance Friendly Society was held on May 3rd, when Dr. F. J. ALLAN presided.

The CHAIRMAN in his address reported that, as in the case of every insurance company, the amount of business done during the year showed a falling off. The society had to deplore the loss of seventeen members who had died from wounds or illness contracted at the front, while two lost their lives in a hospital ship which was torpedoed. The claims for sickness benefit of members on active service amounted to £3,575, which was slightly in excess of 1916. The sum paid as sickness disbursements in respect of 618 civilian claims during the year was £14,357; this included twenty-nine members who were on the funds for the whole year, some of whom had been permanently incapacitated for several years. The total amount of sickness experienced during the year, however, was 22 per cent. below the expectation, and the amount paid out in 1917 was £2,228 less than in the previous year. The sum of £3,676 had been paid in annuities, which showed an increase over 1916, and the increase was one which would normally continue for some years, as no business had been done for many years under the old tables under which the annuities had been taken out. The Life Insurance Fund was gradually growing, and the new tables introduced appeared to be much appreciated. There had been an increase in the Management Fund, due partly to the cost of paying a proportion of the salaries of the members of the staff who had joined the forces and the expense of engaging substitutes to do the work, partly to the great increase in the cost of printing, stationery, lighting and heating, and partly to the decision of the committee to pay a fee of £1 1s. to the practitioner who examined a candidate for insurance. In view of the depreciation of all securities since the last valuation of the society's assets, it had been thought advisable to ask Mr. Warner, President of the Institute of Actuaries, to make an examination of the society's financial affairs at the end of 1917 rather than at the end of the present year. The result showed that the society was in a thoroughly sound financial position. Arising out of the report was a suggestion to transfer £4,884 from the Sickness Fund, which amounted to £176,105, to the Annuity Fund, in order to bring the required reserve of the latter up to the proper standard. The Reserve Fund of £20,000 was considered by the auditor to be sufficient to meet the depreciation at the end of 1917 on all stocks. In view of further likely depreciation owing to the war, the committee, on Mr. Warner's suggestion, considered it safer to recommend the suspension of the payment of any bonus in connexion with the Sickness Fund. The committee proposed, however, to allot a reversionary bonus of 25 per cent. on the whole life assurances in the Life Assurance Fund.

On the motion by Dr. W. K. SIBLEY for the adoption of the report, Dr. BEATON expressed the opinion that to stop the bonus would be a hardship on the members who would shortly be going out of benefit on reaching the age limit, and moved to refer back the paragraph of the report referring to this matter. The amendment was seconded by Dr. VINRACE, but, on being put to the meeting, was lost, and the original motion that the report be adopted carried.

Certain alterations in the rules, which the CHAIRMAN explained were proposed with a view to making clear certain points, were adopted.

The list of officers nominated were elected, Captain the Hon. Rupert Guinness, C.B., C.M.G., M.P., being appointed a trustee in the vacancy caused by the death of Sir Victor Horsley.

The CHAIRMAN then gave informally particulars of the report of a subcommittee which advised the conversion of the society into a company under the Assurance Companies Act, 1909, in order to enable it to undertake insurances for larger amounts; at present its scope was limited under the Friendly Societies Act. Dr. DE HAVILLAND HALL said that the whole trend of insurance work was in favour of amalgamation instead of forming new companies. Dr. SIBLEY said the committee had received several propositions to combine with insurance companies; and while it saw that it would be greatly to the benefit of the companies to combine with the society, it had failed to see any benefit which would accrue to the society. The CHAIRMAN announced that of approximately 1,100 who had replied to his circular letter to members on this subject, 970 were in favour of the scheme, 112 were against the proposal, and 25 were neutral.

SPECIAL SCALES OF RATIONS FOR HOSPITALS, ETC.

THE Ministry of Food has issued (May 6th, 1918) to the local food offices particulars of special scales of rations for hospitals, sanatoriums, and kindred institutions. These scales have been drawn up by the Food Controller after consultation with the medical officers of the Ministry of Food and of the Local Government Board, with the Medical Committee of the Food (War) Committee of the Royal Society, and with an Advisory Committee of Hospital Managers.

The scale for civil general hospitals is as follows, the quantities being the average per head per week, as purchased, for all classes of patients taken together:

Meat*	16 oz.	Potatoes	70 oz.
Poultry or game or fish† ..	32 ,,	Fresh vegetables ...	28 ,,
Sardines and other dried or preserved fish	4 ,,	Milk	8.4 pts.
Bacon (boneless)‡	4 ,,	Jam	8 oz.
Bread	70 ,,	Rice§	8 ,,
Sugar	8 ,,	Oatmeal and pulses§ ...	4 ,,
Butter and margarine ...	4 ,,	Eggs	4
		Cheese‖	4 oz.

* The term meat denotes meat of all kinds, and the whole or any part of the allowance may be taken out in the form of butcher's meat.

† As from May 5th and until further notice, a ration of 8 oz. of bacon per head per week may, at the option of the hospital, be substituted for the whole of the ration of 32 oz. of poultry or game or fish per head per week

‡ Or the equivalent current amount purchasable on one coupon, whichever is the larger.

§ In Scotland the scale will read, rice, oatmeal, and pulses 12 oz.

‖ Cheese should be used as little as possible, and only the less solid kinds.

The civil general hospitals scale is applicable to general hospitals, to most special hospitals, to Poor Law infirmaries, and to the sick wards of other establishments classed as institutions under the meat rationing scheme; and also, under certain conditions, to convalescent homes and nursing homes. It will apply not only to in-patients, but also to the medical, surgical, and nursing staffs.

Special scales have also been drawn up for children's hospitals and for tuberculosis sanatoriums (including special tuberculosis wards of other institutions), whilst naval and military patients treated by understanding with the naval or military authorities are entitled to the naval and military hospital patient's scale. The medical, surgical, and nursing staffs of these institutions will receive the civil general hospitals scale, except that at sanatoriums they will, if themselves tuberculous, receive the same scale as the patients.

Applications to be registered as entitled to a special institutional scale must be made to the local food office. The same hospital may apply for more than one scale. There may, for instance, be naval and military patients, civilian patients and professional staff, and tuberculous patients in special wards, besides other residents and non-residents receiving ordinary rations as members of the general public.

INVALID RATIONS.

The order as to special rations for invalids (M.G.R.M. 27), discussed by Dr. Spriggs in a paper published last week, will shortly be supplemented by the issue of an abbreviated leaflet (M.G.R.M. 27a), which will be supplied by the Ministry to food offices for circulation to registered medical practitioners in their districts.

OWING to the dangers of using rat and mouse viruses the German authorities have recently issued instructions to prevent careless use and to limit the risks.

[6] *The Principles and Practice of Dermatology.* By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois. New York and London: D. Appleton and Co. 1917. (Med. 8vo, pp. xxxv + 1243; 54 plates, 466 figures. 30s. net.)

[7] *Diseases of the Skin: Their Pathology and Treatment.* By Milton B. Hartzell, A.M., M.D., LL.D., Professor of Dermatology in the University of Pennsylvania, Philadelphia and London: J. B. Lippincott Co. 1917. (Med. 8vo, pp. xiv + 753; 242 figures, 15 coloured plates. 30s. net.)

British Medical Journal.

SATURDAY, MAY 11TH, 1918.

MEDICINE IN PARLIAMENT.

THE new reform act which became law on February 6th will not take effect until Parliament is dissolved, but the large task of making the new list of persons entitled to vote has been begun. It is probably safe to assume that there will be no general election until the new register is ready. It was thought at first that it might be completed by October, but the President of the Local Government Board stated the other day that it could not, and he did not give any clear indication of when he thought it would be ready. At the same time the present House of Commons is old, if not senile, and there can be little doubt that no long period will elapse after the register is completed before we have a general election. Already the constituencies are looking out for candidates, and the grinding of the old party machinery can be heard. Consequently it is full time that the medical profession should consider what means it can take to ensure an adequate representation of medicine in Parliament.

It is therefore very opportune that the Council of the British Medical Association, at its meeting a fortnight ago, should have determined to take steps to raise a voluntary fund from members of the Association to assist the candidature of such members of the medical profession as may be adopted as candidates for parliamentary seats. The suggestion seems to us more practical than some of those which have been put forward in the past. It recognizes that the medical profession cannot in any one constituency ensure by its own votes the election of a member, and the resolution goes on to affirm that the assistance contemplated should be given to medical candidates of any party whose membership of the House of Commons appears to the executive body of the fund to promote the interests of the medical profession. Many details will have to be worked out, and the Medico-Political Committee of the Association has been instructed by the Council to set its Parliamentary Subcommittee to consider the methods for carrying out the principle contained in the resolution.

The air is already full of schemes for reconstruction, and the Ministry of that name is engaged, with the aid of numerous committees, in examining many of them and in evolving some of its own. Many of the reconstructive policies which have been announced or foreshadowed touch nearly the future of public health, medicine, and the medical profession. For this reason it is more than ever necessary that the medical profession should take all steps in its power to ensure that it shall be adequately represented. The Annual Representative Meeting in 1914 resolved "that the representation of the medical profession in Parliament at the present time is inadequate, and in the interests of the public and the profession alike should be improved." In 1909 the opinion had been expressed that the medical profession should be represented in the House of Lords as part of the legislature. And this principle would apply to any second chamber which may result from the proposals for the reform of the House of Lords.

In addition to what may be done in ordinary constituencies along the lines indicated above, the medical profession may reasonably hope to have a considerable influence in the selection of university representatives in Parliament, and it might perhaps best achieve its object by working in harmony with other professions and callings interested in science. The number of members the universities are entitled to elect has been increased by the new Act from nine to fifteen. One representative is given to the University of Wales; two to the universities of Durham, Manchester, Liverpool, Leeds, Sheffield, Birmingham, and Bristol, voting as one constituency; an extra member to the four Scottish universities, which will in future, voting as one constituency, have three representatives; and two new members to the Irish Universities, one elected by graduates of the National University and the other by the Queen's University of Belfast. The university franchise is open to men and women graduates on the same terms, with the exception that a woman must have attained the age of 30 years. The university franchise is in addition to, and not in substitution of, the ordinary right to be on the register and to vote for the locality in which the person resides or has his place of business; that is to say, a person may vote on his residence qualification, and also in his university constituency. Under the new Act a man is entitled to be registered on his residential qualification in one constituency, and on his business qualification in another constituency, but if he makes use of his university qualification he foregoes the right of claiming the business qualification. He may exercise only two votes—one in respect of residence qualification, and one in respect of any other qualification—namely, business or university. The definition of "business" is held to include such qualification as is afforded by the tenure of a surgery or consulting rooms in a constituency other than that of residence.

A register of graduates entitled to vote will be kept by the university authorities; the persons entitled to vote are, generally, those who have received a degree other than an honorary degree from the university, but a woman has the right to be on the register if she has passed the final examination and kept, under the conditions required of women by the university, the period of residence necessary for a man to obtain a degree, though the university did not admit women to degrees at the time she passed the examination. The governing body of each university is required to cause a register to be kept of persons entitled to vote, but it is eminently desirable that every graduate should take care to ascertain from the authorities of his or her university that the name is on the university register. This is essential in the case of graduates of the old Queen's University in Ireland and of its successor, the old Royal University of Ireland, since they have an option between the Queen's University of Belfast and the new National University, Dublin, as is more fully explained elsewhere in this issue. The elector will vote at a poll by the delivery of a signed voting paper in a certain form, though in England, Ireland, and Wales a provision may be made for voting in person. The returning officer will be, as a rule, the vice-chancellor of the university. Nomination must take place not less than four days and not more than twelve days after the receipt of the writ, and the poll must be opened not less than three clear days after the day of nomination and not more than twelve; it will remain open for five days. Some of these details are of importance to medical graduates who may be serving abroad. As will be seen, the longest possible

time between the issue of the writ and the close of the poll is twenty-nine days, and the longest possible time between the nomination and the close of the poll, which is the period of practical importance, is seventeen days. This outside interval of seventeen days, which may, if the returning officer so directs, be reduced to eight, will be by no means too long, and makes it all the more important that all medical graduates should at once communicate with the authorities of their university.

A contested election for a university constituency having more than two members will be conducted according to the principle of proportional representation, each elector having one transferable vote, which is defined as "a vote capable of being given so as to indicate the voter's preference for the candidates in order and capable of being transferred to the next choice when the vote is not required to give a prior choice the necessary quota of votes, or when, owing to the deficiency in the number of votes given for a prior choice, that choice is eliminated from the list of candidates." The governing body of a university may direct that a person who before the passing of the Act had received a degree, but was not entitled to vote in respect thereof, shall have no right to be registered unless he makes a claim for the purpose.

ACIDOSIS AND DEATH.

ACIDOSIS has recently attracted much attention, especially in America, where Joslin, once an ardent advocate of the alkaline treatment of diabetic acidosis, now believes that its dangers outweigh its advantages; Howland and his collaborators at the Johns Hopkins Hospital have done much good work on the acidosis of renal disease and of food poisoning in children; and Sellard's monograph containing an account of the acidosis of renal disease and of cholera was reviewed in this JOURNAL on January 5th last. In the same number Dr. B. A. Peters brought forward evidence to show that some of the symptoms in the grave vomiting cases of diphtheria may be due to adrenal exhaustion caused, according to Crile, by a previous acidosis. This observation fits in with Whitney's conclusion that infection has a very well-marked influence in causing acidosis, for Peters's cases received antitoxic serum somewhat late in the disease.

Some recent studies on acidosis, which we also owe to Whitney,[1] contain an interesting discussion of the part played by this condition in causing death, and thus open up a wide field for inquiry. Why does an organism which has carried a load of disabilities for perhaps many years break down altogether at one particular time rather than at another? On the answer to this and other questions rational treatment must depend. Of the ways in which death comes the most common is paralysis of the respiratory centre, and this in its turn is in the majority of instances due to soluble poisons; toxic proteoses, for example in intestinal obstruction, may be responsible, and so may acids. The effect of an increase of acid radicals is first to stimulate and then to paralyse the respiratory centre, and it makes little difference whether this finally increased acidity is due to carbon dioxide or to other acids. Shock has interesting relations with the subject of acidosis and death; the phenomena of shock are to all intents and purposes the same as those of the terminal states preceding death, and Martin Fischer and Yandell Henderson believe that acidosis of the tissues accounts for the passage of the fluid parts of the blood out of the vessels, which is an important feature of shock.

Out of a number of human cases investigated by Whitney the great majority showed a more or less well-marked acidosis at the time of death, and in many of these the acidosis was so considerable that it alone could have led to respiratory paralysis, and so may be assumed to have been the cause of death. But death itself, or the state preceding it, does not necessarily cause acidosis; for in two cases of pyloric stenosis with gastric tetany there was the opposite condition of alkalosis, and two cases of circulatory failure without acidosis are quoted. Infection appears to be a powerful factor in causing acidosis; thus all the cases of acidosis except one showed evidence of severe infection, and the cases without acidosis were not infected. But there may be well-marked infection without acidosis provided the urinary excretion is properly maintained. Thus in pneumonia among the young and previously healthy persons there may be an absence of acidosis and a low mortality, whereas it is a deadly disease for the aged and for patients with chronic disease, especially nephritis. The terminal acidosis due to infection develops rapidly, and is usually followed by death in a few days or even a few hours; this suggests that the influences restraining acidosis are in most conditions extremely efficient, and also that their failure is followed by rapid and fatal accumulation of acid products.

In his brief remarks on the treatment of acidosis Whitney points out that alkalis should not be given indiscriminately, for the neutralization of the acid ions is not the only thing to be considered; the salts thus formed must be eliminated, and if excretion is so poor as to allow acidosis to develop it is probable that these salts will also accumulate, and possibly to a highly dangerous concentration in the blood and tissues. Diuresis should therefore be promoted by giving large quantities of fluid by the mouth, under the skin, or perhaps best by J. B. Murphy's drip method of continuous rectal injection. Fresh air should be provided in the form of a gentle breeze across the face to prevent the rebreathing of carbon dioxide, which may prove the last straw to the overloaded respiratory centre. Morphine, which is well known to be a respiratory depressant, must also be used with great caution.

[1] J. L. Whitney: *Arch. Int. Med.*, Chicago, 1917, xx, 931-950.

CINQ ANS APRES.

IN 1912 the inexorable age limit of 65 deprived the Massachusetts General Hospital of the services of Dr. F. C. Shattuck, but with the entry of his country into the war he returned to his post, or as he puts it was resurrected, and his attractive address[1] to the Johns Hopkins Hospital Medical Society contains some shrewd *obiter dicta* on what five years can do for hospital practice, which are interesting in the light of our experience on this side of the water. One striking feature is the fall in the number of typhoid patients, to 5 per cent. of the medical beds, as compared with its incidence in the past. Gastric ulcer, formerly common in women, now appears to be more frequent in men, and *x*-ray examination, as is the case in this country, has come to occupy a more important position, partly from improved methods but mainly from accumulated knowledge, while the surgical treatment has apparently become more discriminating than it was. Five years ago the fresh cold air treatment of pneumonia was in full swing at the Massachusetts General Hospital, and was perhaps more thoroughly carried out than at present. The strains of pneumococci had not been differentiated in 1912, and until the specific treatment is more fully developed the mortality must be expected to remain much the same; a review of this question shows that the mortality

[1] *Bull. Johns Hopkins Hosp.*, Baltimore, 1918, xxix, 77-80.

has been practically unchanged during the varying phases of the old heroic bleeding and mercurial methods, of the expectant and alcoholic, of the symptomatic, and of the fresh air treatment. Dr. Shattuck suggests that the pendulum may have swung too far away from alcohol in grave cases, and asks if fifty years hence alcohol will be regarded as always, everywhere, and in all circumstances the unmitigated poison that it is to some present-day apostles and the American Medical Association; its undoubted abuse in the past does not affect the belief that in some instances it is life-saving, but, as Opie said of his pigments, it must be mixed with brains, and the best results are obtained only under skilled supervision which contraindicates the repetition of the dose while its toxic effects, such as flushing, or its odour in the breath, persist. The increased value of skiagraphy in the detection of gall stones of late years depends on the shortening of the time of exposure from twenty seconds to a fraction of a second. From a more general survey of the changes it appears that the increasing elaboration of reports and records is not free from the danger of obscuring the wood by reason of the trees, and it is well to emphasize the necessity of a brief, clear and consecutive summary of the essentials of a case—a moral which many writers of clinical articles might take to heart. With the multiplicity of instruments of precision the possibilities of investigation are becoming progressively so numerous that some patients now have time to die or get well before a really scientific diagnosis is reached, and there is a greater chance than formerly for the patient to be forgotten in the pursuit of his disease. Finally, the plea entered for humanism is most appropriate on the scene where a great humanist—now the Regius Professor at Oxford—scored so many of his triumphs.

PHYSIOLOGICAL ASPECTS OF FLYING.

THE physical qualifications for admission to the air service are necessarily high, but even now there is no finality about the standards, which are always subject to modification in the light of the experience accumulated from day to day. The medical assessors of the physical and nervous capacity of the flying man have had to formulate their testing methods gradually from a study of the airmen who have "made good." Previous observations of life at high altitudes were of little value for this purpose, because the airman, unlike the mountaineer, does not become acclimatized to the higher levels; the amount of time which a constant flier spends at a height above 10,000 ft. is extremely brief, even in a period of service measured by years. The only possible expedient, as Major Martin Flack, R.A.M.C., stated in his lecture at University College on May 6th, is to take as a criterion the physiological standards of the men who have withstood the sudden and violent accommodations which flying involves; certain definite conclusions as to the flying temperament also can be reached in the same way. The first physiological change on making a flight is an increase in the depth of respiration, although this is not immediately noticeable by the subject unless he watches for it; at a height of 12,000 or 15,000 ft., however, every man becomes a mouth breather. Next there occurs a quickening of the pulse, and then certain subjective and objective sensations, including possibly a certain amount of illusion, as a result of oxygen want. In some cases there is nausea and dizziness, and, exceptionally, fainting. Major Flack, in the course of his lecture, gave illustrations of the tests used in examining candidates for the air service. Among the first requirements, given general bodily soundness, is a large respiratory capacity. Any one with a respiratory capacity below 3,400 c.cm. should be regarded as a doubtful subject whatever his general physique. A firm and hard abdominal wall is also necessary. The response of the heart to a definite amount of work has to be tested, during which the quickening is noted, and also the length of time taken to return to the normal. The diastolic as well as the systolic pressure are taken into account; when the former sinks below a certain level, even though the systolic is maintained, the man is considered unfit to fly. Other requirements are a high degree of visual acuity, keenness of hearing and ability to resist the tendency to deafness which sometimes accompanies the act of rising in the air, a capacity for maintaining bodily balance, delicate hands, and, generally, a sporting and fearless temperament. But standards can only be set up for other recruits by observing the men who have already worn well in actual service.

THE DEAF SOLDIER.

DR. DUNDAS GRANT contributes an interesting paper on the treatment and training of the deaf soldier to the third number of *Recalled to Life*, a journal devoted to the interests of disabled sailors and soldiers, the earlier numbers of which have already been noticed in these columns. The author, from his position as chairman of the special aural board appointed by the Ministry of Pensions, is in close touch with all the work that is being done on behalf of deafened ex-service men. The chief aim is to restore to these men the capacity for understanding and communicating with their fellows. Of the various ways and means, lip-reading is by far the most important. "When skill in lip-reading is attained," says Dr. Grant, "the individual is again made a sociable being, and is saved, to a great extent, from that isolation and self-inclusion which render him both sullen and suspicious." He next tells of his tour among French schools for the instruction and re-education of the deaf soldier. At one place he asked the chief gardener, an expert lip-reader, whether he could tell that he was not French, and received the answer that "les mouvements de vos lèvres ne sont pas les mêmes que les nôtres," showing that it is possible to see the foreign accent of a good linguist. Good results have already followed skilful teaching in France, and parallel work in the United Kingdom has recently been started, notably in Edinburgh. It appears that the number of soldiers so completely deafened by warfare as to be unfit for reasonable enjoyment of social and industrial life is relatively not very considerable, and that from three to six months' methodical instruction in lip-reading will usually remove their main disability to a notable extent. Although the number of the totally deaf is relatively not very great, there are many other discharged men with diseases of the ear and minor degrees of deafness for whom suitable treatment should be freely available in the form of aural out-patient clinics in convenient and accessible centres. Dr. Grant gives a very clear account of the functions of the special aural board. A point upon which he dwells more than once is the concentration of attention needed for the acquisition of lip-reading, leading to fatigue, especially in men who have worked hard at other pursuits during the day, and this is an obstacle to regular attendance at evening classes. For the purposes of the pensions department the United Kingdom is divided into areas, each under the control of a representative of the Ministry and one or more aural surgeons, with a lip-reading specialist attached. The chief difficulty so far seems to have been to get the men to respond to the invitations to come up for examination and training. This is, no doubt, due to the fact that during the present exceptional demand for labour even very deaf men are offered employment at abnormally high rates of pay. Hence the warning that when the war is over and healthy hearing men return to the labour market, the unfortunate victims of deafness who have not learnt to lip-read will find themselves elbowed out of their employment by the mere force of circumstances. Another factor in the small response is the mistaken idea that

a man's pension will be cut down when he has learnt to lip-read. The machinery for training now exists, and it is of the utmost importance for the men to profit by it without delay.

STATE PURCHASE OF THE LIQUOR TRADE.

THE reports of the three Liquor Trade Finance Committees were issued last week. It was necessary to appoint separate committees for Scotland, for Ireland and for England and Wales because the organization and legal conditions of the trade differ in all three countries. In Scotland, for instance, the Temperance Act of 1913 provides for local option at June 1st, 1920, which affects the estimate of goodwill, rights of compensation, etc. The reference to the committees confined them strictly to the financial questions relating to the terms upon which interests concerned in the manufacture and supply of intoxicating liquors should be acquired, and the financial arrangements during the period of control. The committees were not instructed to advise as to the need of control or the policy of purchase, the Government being of opinion "that it may shortly be necessary as an urgent war measure to assume control of the manufacture and supply of intoxicating liquors during the war and the period of demobilization, and that such control would involve the purchase after the war of the interests concerned in such manufacture and supply." The committees have kept closely to their reference, and their reports are in substantial agreement on all main points The three committees agree that the Government cannot take control without an obligation to purchase, and that the purchase consideration should be arrived at by capitalizing pre-war profits, giving the holders an equivalent investment in Government stock. They agree that the scheme of purchase should include breweries with or without tied or managed houses, free houses, the interests of on-licensed tenants and of retail off-licences, but not hotels, restaurants, clubs, railway refreshment rooms and cars, steamer licences, and theatre and music-hall licences, allied trades, or the interests of wholesale dealers. Business carried on in shades or vaults of an hotel or restaurant would be included, as also the business of an hotel or restaurant which forms part of a brewery asset or is inseparable from the attached retail on-licence. The committee for England and Wales deferred a decision as to distillers and rectifiers until the Scottish and Irish committees had reported. These committees recommend the inclusion of such businesses in the purchase scheme. The Irish committee advises the reduction of licences in that country by at least one-half, with compensation to those suppressed from money raised entirely or largely by a special levy on the Irish trade. The purchase price suggested is fifteen times the annual profit ascertained for the five years before the war. The Irish scheme recommends twelve years' purchase on the net pre-war profit in the case of distillers. The committees recommend that persons losing employment, including holders of on-licences, should be compensated in accordance with a schedule. The total estimated cost is somewhat more than four hundred millions, but substantially less than five hundred millions.

A COUNCIL OF BRITISH OPHTHALMOLOGISTS.

A MEETING of ophthalmic surgeons and physicians was held at the rooms of the Royal Society of Medicine on May 2nd for the purpose of forming a council to take action in ophthalmological matters arising in connexion with public affairs. Mr. Treacher Collins, President of the Ophthalmological Society of the United Kingdom, was in the chair, and the resolution affirming that such a council should be formed was proposed by Sir Anderson Critchett. It would, he said, meet a definite need and tend to weld the elements of ophthalmology more closely together, as well as making for the welfare of the public. Mr. Richardson Cross (Bristol) seconded the resolution, remarking that governments and governing bodies needed expert advice in order to be efficient, and the best experts were those who enjoyed the confidence of their colleagues in that special line of practice. Owing to the amalgamation of the journals devoted to ophthalmology, and the representation on the Ophthalmological Society of the various similar bodies in the kingdom, the profession was now well organized and could present a powerful front on all questions specially concerning it. He instanced ophthalmia neonatorum, army and navy visual standards, visual and lighting requirements in various kinds of industry, organized inquiries concerning the blind, and grades of compensation payable according to degrees of visual disability. Mr. J. B. Lawford, in supporting the resolution, said that the days were rapidly passing when the nation could afford to ignore scientific discoveries and the new methods based upon them. He believed more attention would be paid in the future to the views of representative bodies and less to the opinions of individuals, however eminent. We were much behind other civilized countries in that ophthalmology was not a compulsory subject of the medical curriculum. At present a man receiving the minimum qualifying medical diploma could at once take up the practice of ophthalmology; if the proposed committee did no more than insist that men should not take up this work without special training, it would fully justify its formation. Other speeches in support of the resolution were made by Mr. Grey Clegg (Manchester), Sir George Berry and Dr. G. Mackay (Edinburgh), and it was carried unanimously. It was further decided that the council should consist of all the past and present presidents of the Ophthalmological Society of the United Kingdom and of the Section of Ophthalmology of the Royal Society of Medicine as permanent members, four members nominated annually by the councils of each of these societies, and one representative from the Oxford Ophthalmological Congress.

SHAKESPEARE'S HANDWRITING.

DR. R. W. LEFTWICH put forward, at the fifty-ninth annual Shakespeare festival of the Urban Club on May 7th, a suggestion with regard to Shakespeare's handwriting which is ingenious and certainly fits well with some of the facts. The specimens which have been preserved of Shakespeare's handwriting all date from the later years of his life, from 1612 to 1616. They all appear so laboured that they must have been written very slowly. The difficulty is to reconcile the theory that he wrote slowly with his very large output. The inference from the statement of Hemyng and Condell is that his penmanship of the plays was excellent, "his mind and hand went together," and the "William" of the full signature to the will proves that he was able to write at least a word or two well. If his later writing is so much worse than his earlier, the change must have been due to disease; yet it could not have been a constitutional disease, for, in the preamble to his will, Shakespeare solemnly declares that he is in perfect health. Now, all possible diseases, with one exception, are ruled out by age, duration, good mental capacity, the non-rhythmic tremor, etc. Dr. Leftwich's contention is that only one condition fulfils all the indications, and that is writer's cramp. To test this, he collected the opinions, as to the causes and the signs of the disorder, given by twelve eminent authorities on the subject. In the first place, as is well recognized, all persons who suffer from writer's cramp have been voluminous writers; that Shakespeare must have been a voluminous writer is proved by the fact that the first folio alone contains one thousand double columns. Again, a cramped position of the hand in writing is held to be one of the causes, and the handwriting of Shakespeare's time was cramped. The age also agrees: Shakespeare was 48 in 1612, and of 194 cases seen by Jelliffe 45 were in persons between the ages of 40 and 50

With the help of facsimiles of the signatures the presence of all the signs enumerated by authorities was demonstrated by Dr. Leftwich, who concludes that the advent of the disorder in or about 1611—the year in which the last play, *The Tempest*, was produced—explains why Shakespeare retired to Stratford in the prime of life. The suggestion recalls the note in which Pepys explained the reason why he gave up keeping his diary; in his case it was defective vision, probably due to failure of accommodation.

MEDICAL PRACTITIONERS UNDER THE MILITARY SERVICE ACT.

REGULATIONS giving effect to the provisions of the Military Service Act, 1918, rendering liable to military service medical practitioners who have not attained the age of 56 years, have been drafted by the Local Government Board, in consultation with the Ministry of National Service, and have been under the consideration of the Central Professional Committees. These regulations will probably be issued next week, and will come into force at once, since they are made under Section 1 of the Act. Medical practitioners brought within the scope of the Military Service Acts will receive at an early date a notification from the Ministry of National Service requesting them to appear for medical examination, as their cases are brought under review by the medical tribunals (the Central Professional Committees) in consultation with the Ministry. The places at which the medical examinations shall be made will be selected with due regard to the convenience of medical practitioners in the various areas as these are brought under review.

WE understand that the bacteriological investigations have not so far confirmed the suggestion that the cases recently observed in London, Sheffield, and some other parts of the country, presenting obscure nervous symptoms characterized especially by ophthalmoplegia, are to be attributed to infection by *B. botulinus*. The diagnosis of botulism is therefore in doubt, and that of polioencephalitis cannot be excluded. The investigations into the nature of the disease are being made by the Local Government Board with the assistance of the Medical Research Committee.

Medical Notes in Parliament.

Criminal Law Amendment Bills.

IN the House of Lords, on May 7th, second reading was given, on the motion of Viscount Sandhurst, to a Government measure, the Criminal Law Amendment Bill, which, subject to a few important alterations, has been modelled on the lines of a bill that passed through Standing Committee of the House of Commons last year, but could not be taken further. The Lords also gave second reading to a Sexual Offences Bill, introduced by Lord Beauchamp, and referred both measures to a Joint Committee of the two Houses.

In explaining the provisions of the Government bill, Lord Sandhurst said that Clause I would abolish the plea of defence that a person under sixteen consented to the act complained of. Clause II would withdraw as a defence the reasonable cause of belief that the girl was sixteen years old, and it proposed to extend the period during which proceedings might be taken to twelve months after the alleged offence. Clause III would enact that where any girl was convicted before any court that, "being a common prostitute," she loitered or importuned for the purposes of prostitution and solicitation, such a girl, under 18, might, until the age of 19, be detained in a home in lieu of punishment. The clause, he said, laid down that such a course should be taken only after most careful inquiry by a probation officer, or by a committee of which two of the members should be women.

The bill of last year did not restrict the application of the clause to "common prostitutes"; nor was a term for detention in a home given, as in this bill, with limitation of a year. As in the previous bill, there is right of appeal to Quarter Sessions against an order for such detention.

In regard to Clauses V and VI, dealing with venereal disease, Lord Sandhurst said that the position was much changed since the bill was originally drafted and introduced last year. Much was being done under the Venereal Diseases Act—in diagnosis, treatment, and in the organizing of institutions, which had already done much better work than many had expected.

Clause V of the bill takes up the old provisions against sexual intercourse by persons suffering from venereal disease, and has a new subsection, as under:

(3) A person charged with an offence under this regulation shall if he so requires be remanded for a period (not less than a week) for the purpose of such medical examination as may be requisite for ascertaining whether he is suffering from such a disease as aforesaid. The defendant shall be informed of his right to be remanded as aforesaid, and that he may be examined by his own doctor or by the medical officer of the prison.

By Clause VI an offence under the previous clause is added to the list of offences which afford ground for judicial separation for women. Clause VII is designed to consolidate and amend the Indecent Advertisement Act of 1889, and the Venereal Diseases Act of last session.

Army Medical Service Report (France).—Major David Davies asked Mr. Macpherson on May 2nd whether, in view of the increased demands upon the medical man power of the country, he would take immediate steps to present to the House the report of the committee of inquiry into the medical service in France. Mr. Macpherson replied: In the opinion of the recognized heads of the civil medical profession there is nothing in the report on which action is likely to be taken affecting the medical man power of this country. As I informed my hon. and gallant friend on April 23rd, consideration of the report has had to be suspended during the present emergency. It is not proposed to publish the report.

Medical Students and National Service.—A full statement as to the position of medical students in regard to national service was made by Mr. Beck, on May 2nd, in reply to a question by Mr. Snowden. He said that it was determined by National Service Instruction 35 of 1918 and Army Council Instruction 153 of 1918. These instructions were summarized in the JOURNAL of March 16th and February 23rd respectively. Mr. Beck added that medical students who did not fulfil the conditions of exemption were posted to the army in the ordinary way and not necessarily to the R.A.M.C.

Medical Men's Chauffeurs.—Sir Watson Cheyne asked whether chauffeurs employed by medical men carrying on large general practices, not only of their own, but also of medical men serving in the army and very dependent on their experienced drivers, might be exempted from military service. Mr. Beck replied that the Decertification Order of April 9th applied to chauffeurs within the age and medical category stated, but that a certain discretion was vested in National Service representatives to be exercised in urgent and exceptional cases until an efficient substitute had been found. It could not be too strongly urged that all motor drivers fit for military service should be replaced at the earliest moment by women, by unfit men, or by men discharged from the forces.

Indian Medical Service.—On an inquiry by General Page Croft, on May 8th, Mr. Herbert Fisher said that, as a special measure, the Secretary for India last December authorized the antedating of the promotion of certain captains of the Indian Medical Service with a view to securing for them a relative equality in seniority with that of corresponding officers of the Royal Army Medical Corps whose promotion had been accelerated by war conditions.

Voluntary Red Cross Workers.—The position under the Military Service Act of voluntary Red Cross workers who convey wounded soldiers from railway stations to hospitals was explained by Mr. Beck on May 2nd. The Army Form C 337 was a certificate of identity issued by the War Office to civilians wearing Red Cross brassards, and conferred no exemption or protection from military service. Men certified as full-time workers by the British Red Cross Society whose engagement had been sanctioned by the Director of National Service in the region were not called to the colours under present instruction if placed in Grade 3. It was intended that men now liable for service by the raising of the military age should have this protection if they fulfilled the above conditions.

National Service Grading.—Mr. Beck informed Mr. Anderson that the standard of medical grading by National Medical Boards had not been altered, except that a slightly lower standard of vision had been adopted in accordance with the views expressed by a committee of military and civil ophthalmic specialists.

Examinations by Medical Boards.—In reply to Mr. Cathcart Wason, Mr. Beck, on May 1st, said that under present arrangements for the medical examination of recruits every effort was made not only to obtain evidence of each man's medical history but to weigh this evidence carefully before deciding on a man's grading.

Supplemental Rations.—Mr. Clynes, the Parliamentary Secretary to the Food Department, said, on May 3rd, that it was not at present possible to state the number of persons who were obtaining a higher scale of food rations. So far as civilians were concerned heavy manual workers obtained two extra meat coupons a week, and these were valid for the purchase of any meat other than uncooked butcher's meat. There was no differentiation of rations between different classes of heavy workers. A certain number of women and children were included in this class. Adolescent boys from 13 to 18 obtained half the amount, while an additional meat meal was provided for persons working a specified amount of overtime at night after a full day. The Food Control Committees were ordinarily the deciding authorities, but acted under general instructions from the Ministry of Food. The arrangements were provisional.

THE WAR.

TREATMENT OF WOUNDS IN WAR.

(*Concluded from p. 516.*)

THE following are the final sections of the conclusions of the Inter-Allied Surgical Congress at Val-de-Grâce from March 11th to 16th.

IV. TREATMENT OF PSEUDARTHROSIS.

1. The unavoidable cause of false joints in war fractures is the primary destruction of a part of the diaphysis. The other causes which actually have to be taken into account are infection, excessive removal of splinters of bone, and bad reduction, and these ought to disappear. A certain number of false joints can be avoided by sterilization of the seat of fracture, prudent removal of fragments of bone, good reduction carefully supervised, and in certain well-defined cases by immediate or early fixation of the bones.

2. Save in exceptional cases, false joints should only be operated upon after a considerable interval, when the skin wound is completely cicatrized and when clinically the inflammatory process appears to have ceased. The existence of buried organisms should be investigated by all means at our disposal, such as forcible active and passive movements, elastic bands, vigorous massage, etc.

The following note is added at the request of Sir Arbuthnot Lane:

(*a*) In cases in which the lower end of the femur, or the upper end of the tibia, or both, are removed the treatment may differ according to the occupation of the wounded man. In workmen an attempt should be made to obtain ankylosis between the femur and tibia either directly or by means of a graft; in men following sedentary occupations a false joint fixed by an apparatus which permits of flexion may be more advantageous. Either of these two conditions is preferable to amputation of the thigh and an artificial limb. (*b*) In a case in which there has been extensive loss of substance of the lower end of the humerus, the elbow being intact, it is often desirable to obtain a false joint permitting flexion between the humerus and its shattered lower end, leaving rotation to be produced at the radio-humeral articulation. This condition is more useful and permanent than that given by resection of the elbow.

3. From the point of view of treatment two conditions are to be distinguished: (*a*) In simple false joints and in certain examples of false joint with loss of substance in the part of a limb containing only a single bone, it is possible, after freshening the bone in the manner that pathological anatomy suggests, to unite the bones by a metal plate. The best method appears to be fixation with a metal plate, using screws, the screws being placed as far as possible from the false joint. The combination of the use of the metal plate and of an osteo-periosteal graft has given very good results. (*b*) A false joint with loss of bony substance usually requires a bony or osteo-periosteal graft.

4. Perfect asepsis. Complete excision of the fibrous tissue which surrounds the fragments and of any diseased portions of the bones are conditions indispensable to success.

The following note is added at the request of Sir Arbuthnot Lane: An additional means of detecting and eliminating the persistence of infection is the use of autogenous or stock vaccine.

V. CONSERVATIVE OPERATIONS ON THE FOOT.

As it is very desirable to maintain the integrity of the sole, incisions or resections through it should only be performed when absolutely necessary. Every endeavour should be made to obtain primary union in every case. The same considerations apply to the dorsal surface of the foot when cicatricial contraction might interfere with the functions of the sole of the foot. It is even justifiable to resect certain bones in order to permit primary or secondary union and the maintenance of the skin of the sole in its normal condition. Amputation of one or several toes causes little inconvenience. The preservation of one toe, especially the first or the fifth, is often embarrassing. Disarticulation of the metatarsal bones, with preservation of the corresponding toes, generally gives bad results. Resection of the first and fifth toes, with their metatarsal bones, generally gives a satisfactory result. The result of preservation of the great toe alone, with its metatarsal bone, is not generally good. Excision of the second, third, and fourth metatarsals produces a narrow foot, and walking and standing are seriously impeded. As a general rule the loss of three metatarsal bones seriously upsets the mechanism of the foot. The results of amputation through the metatarsus with a good plantar flap, whether performed through the anterior or posterior part of the metatarsus, are very favourable. After Lisfranc's disarticulation walking may be easy and even elastic if the remainder of the foot is in good condition. As it is a difficult operation, it may be simplified by leaving the bases of the metatarsal bones. Pre-scaphoido-cuboid amputation gives good functional results. In short, all the operations through the front of the tarsus give good results if there be no complication due to the cicatrix or the conditions of the articulations. Chopart's amputation when done under good conditions and carefully watched may give a good result, but the equinism and the displacement of the stump often cause functional troubles which render it inferior to the amputations of Lisfranc and Syme. Partial resections of the astragalus and calcaneum, or horizontal resection of the calcaneum, check the tendency to equinism. Amputation below the astragalus (Pirogoff's amputation and more especially Syme's) leaves the patient able to walk easily and quickly. On the other hand, operations on the posterior tarsus are very often followed by functional difficulties. Total or subtotal excision of the astragalus gives good results, but they are not so good as those obtained in peace; the causes of failure are infection of neighbouring tissues, stiffness of joints and tendons, and insufficient supervision of the attitude of the foot after operation. Excision of the whole or greater part of the calcaneum, if bony regeneration does not take place, leaves a bad condition, very frequently attended by tibio-tarsal or mediotarsal ankylosis. Partial resections, whether posterior or inferior, give less unfavourable results if the foot is well maintained at a right angle during the whole course of treatment. Combined resection of the calcaneum and the astragalus gives usually a bad result.

Atypical Operations.—Resections of the anterior part of the tarsus involving the scaphoid and cuboid are often followed by equinism, with valgus or varus, or falling in of the arch of the foot. The functional condition can be greatly improved by an orthopaedic boot. The seriousness of the consequences of excision of either of these bones seems to be about equally great. The results of atypical operations on several bones of the anterior part of the tarsus are determined much more by the degree of preservation of the arch of the foot, the strength of the points of contact of the sole with the ground, and the preservation of the action of joints and tendons than on the site of the operation itself. Vicious positions of the foot, if the joints be freely movable, can be cured or improved by the division or transplantation of tendons. Transplantations are particularly useful when certain tendons have been destroyed. Some vicious positions with ankylosis call for secondary operations on the bones (resection of the cuneiform or astragalus). In short, conservative operations on the metatarsus are good, but in the posterior tarsus excision of the calcaneum or resection of several bones often cause functional disturbances which are graver than those following disarticulation or a Syme's amputation.

Note.—Professor Depage points out that in suppuration of the joints of the tarsus, persisting in spite of excision of the astragalus, an operation turning the foot forwards and inwards by extensive section of tendons and ligaments, and the maintenance of the position by means of a bandage, favours disinfection of the suppurating focus. The foot can be replaced in the normal position after a week or a fortnight.

VI. FIXATION OF COMPOUND FRACTURES.

A distinction must be drawn between a primary operation for fixation of a compound fracture and an operation performed during the period of infection.

Primary Fixation.—The possibility of applying primary suture or delayed primary suture to a great number of wounds complicated by fracture justifies in principle the

immediate fixation of compound fractures, but the indications for the operation are uncommon. They are:

1. In certain fractures of joints in which the operation appears to be a method of choice to obtain anatomical and functional restoration.

2. In fractures of shafts which are irreducible or cannot be maintained in correct reduction (especially subcondylar fractures of the femur, fractures of the arm, etc.), and when large displaced fragments of bone are present.

Modern improvements in splints, however, render it possible in the majority of cases to obtain satisfactory adjustment without a fixation operation. Primary fixation is a difficult operation which exposes the patient to grave complications; it should be performed only by surgeons who have specialized, and at the present time the indications for it are uncommon. In the British army it is not the custom to have recourse to a primary fixation operation, for two reasons: (1) The good results now obtained with splints; (2) the bad results which fixation operations have often given in the past.

Fixation during Infection.—Operation for fixation during infection is accepted by some, but expressly rejected by others; those who accept it hold that it lessens the infection at the seat of fracture, is not accompanied by prolonged osteomyelitis, and is rarely attended by secondary sequestra. The results obtained, as a whole, are favourable. The indications for the operation would be the impossibility of reducing certain fractures of shafts or of maintaining them in correct reduction. Nevertheless, modern improvements in splints render possible such satisfactory reduction that fixation by operation is rarely indicated. Temporary fixation by means of plates and screws commands a majority of suffrages.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON H. N. DALE-RICHARDS, R.N.

Surgeon Hedley Norman Dale-Richards, R.N., was reported as killed in action, in the casualty list published on May 1st. He was educated at St. Mary's Hospital, and graduated B.Sc.Lond. in 1912, after which he held the posts of joint lecturer in biology and senior demonstrator in physiology in the Middlesex Hospital Medical School. In 1917 he took the diploma of L.M.S.S.A., and immediately joined the navy as a temporary surgeon.

SURGEON PROBATIONER W. C. HOLDSWORTH, R.N.V.R.

Surgeon Probationer W. C. Holdsworth, R.N.V.R., was reported as killed in action, in the casualty list published on May 1st. He had previously been reported as "missing, presumed killed," in the loss of H.M.S. *Begonia* in October, 1917.

Died of Injuries.

SURGEON R. W. BRANDER, R.N.

Surgeon Robert William Brander, R.N., died of accidental injuries at South Queensferry Naval Hospital on May 1st. While returning on a motor cycle from duty at Burntisland he was run into by a train of wagons at a siding at Rosyth. He was the son of Mr. Brander of Cupar, Fife, and was educated at the University of Glasgow, where he graduated M.B. and Ch.B. in 1914, and served as resident assistant to the Regius Professor there, till he took a temporary commission in the navy. For fifteen months he was surgeon on a cruiser in the North Sea, and afterwards served for eight months as house-surgeon at the Marchioness of Bute's naval hospital at Mount Stuart, Rothesay. Subsequently he was surgeon on a cruiser in the West Indies and the Atlantic.

ARMY.

Killed in Action.

CAPTAIN T. J. FEHILY, R.A.M.C.

Captain Thomas Joseph Fehily, R.A.M.C., was reported as killed in action, in the casualty list published on May 3rd. He was educated at Queen's College, Cork, and in the medical school of the Royal College of Surgeons, Ireland, and took the Irish double qualification in 1908 and the D.P.H. of the R.C.S.I., in 1910. After serving as house-surgeon at Jarvis Street Hospital, Dublin, and as assistant medical officer and pathologist at the Devonshire County Asylum at Exminster, he became assistant medical officer at the Lancashire County Asylum at Rainhill. He took a temporary commission as lieutenant in the R.A.M.C. on October 10th, 1914, and was promoted to captain after a year's service.

CAPTAIN R. S. KENNEDY, M.C., R.A.M.C.

Captain Ronald Sinclair Kennedy, M.C., R.A.M.C., was reported as killed in action, in the casualty list published on May 6th. He was educated at Guy's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912, and at Cambridge, where he graduated B.A., M.B., and B.C. in 1913, and M.D. in 1917. He entered the Egyptian service, where he successively filled the posts of ophthalmic surgeon to the Daquahlia Provincial Hospital, and of inspector of ankylostoma hospitals, till he took a temporary commission in the R.A.M.C. towards the end of 1916, being promoted to captain after a year's service. He received the Military Cross on September 26th, 1917, and was recently attached to the South Lancashire Regiment.

CAPTAIN I. KEITH-FALCONER MACLEOD, R.A.M.C.

Captain Ion Keith-Falconer MacLeod, R.A.M.C., was killed in action on April 27th. He was the only son of the Rev. D. J. MacLeod, of the United Free Church Manse, Boddam, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1914. After serving as resident house-surgeon in the Edinburgh Royal Infirmary, he joined the R.A.M.C. as a temporary lieutenant, and was promoted to captain a year later.

CAPTAIN H. E. ROBINSON, R.A.M.C.

Captain Henry Ellis Robinson, R.A.M.C., attached West Yorkshire Regiment, was killed on April 26th, aged 31. He was the fourth son of the Rev. E. C. Robinson, of Malvern, formerly of Hanbury, Staffordshire, and was educated at St. Bartholomew's Hospital, obtaining the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1915. Shortly after, he took a temporary commission as lieutenant in the R.A.M.C. and became captain a year later.

Died on Service.

CAPTAIN H. G. MASSY-MILES, R.A.M.C.

Captain Harry Godfrey Massy-Miles, R.A.M.C., died on service on April 26th, aged 32. He was the eldest son of the Rev. Canon J. H. Miles, of Teignmouth, and was educated in the medical school of the Royal College of Surgeons, Ireland, taking the diplomas of L.R.C.S.I. and L.R.C.P.I. in 1909. After acting as extern maternity assistant at the Rotunda Hospital, Dublin, and as house-surgeon of Fermanagh County Hospital, he went into practice at Trafford Park, Manchester. He took a temporary commission as lieutenant in the R.A.M.C. on December 21st, 1914, and was promoted to captain after a year's service.

Died of Wounds.

MAJOR W. S. GARNETT, A.A.M.C.

Major W. S. Garnett, Australian Army Medical Corps, was reported as having died of wounds, in the casualty list published on May 3rd. He had previously been reported as wounded in that of April 30th.

CAPTAIN H. S. PALMER, R.A.M.C.(T.F.).

Captain Hugh Salisbury Palmer, R.A.M.C.(T.F.), died of wounds on April 25th, aged 30. He was the younger son of the late Mr. C. A. Palmer, of Norwich, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1914. He took a commission as lieutenant in the 1st Home Counties (Maidstone) Field Ambulance on November 10th, 1914, and had subsequently served as medical officer to the 2nd Battalion Rifle Brigade, and in the 2/2nd Home Counties Field Ambulance.

CAPTAIN C. E. A. WILSON, R.A.M.C.

In the JOURNAL of April 30th we printed an obituary notice of the late Captain C. E. A. Wilson, who died of wounds on April 8th. A former teacher states that Captain Wilson received his fatal wound in the spine whilst attending the wounded under heavy fire; in spite of the gravity of his condition he insisted upon others being attended to first. He had previously been recommended for the Military Cross for conspicuous courage. Wilson achieved

the rapid success in practice which his professional ability, devotion to work, and kindliness of disposition could not fail to bring. He was a man of high ideals and culture, combined with a modest and unassuming demeanour; a delightful companion and a staunch friend.

Wounded.

Lieut.-Colonel A. L. C. Gilday, Canadian A.M.C.
Major J. B. Lowe, R.A.M.C. (temporary).
Major J. Purdie, M.C., R.A.M.C.(S.R.).
Major A. W. Rattrie, R.A.M.C. (temporary).
Brevet-Major N. W. Stevens, R.A.M.C.
Captain E. S. Cuthbert, R.A.M.C. (temporary).
Captain G. Fleming, R.A.M.C. (temporary).
Captain W. A. N. Fox, R.A.M.C.(S.R.).
Captain H. L. Gauntlett, R.A.M.C.(T.F.).
Captain F. C. Harrison, R.A.M.C.(S.R.).
Captain J. G. Hill, R.A.M.C.(T.F.).
Captain C. H. Leeman, M.C., Australian A.M.C.
Captain G. T. MacLean, R.A.M.C. (temporary).
Captain A. Malseed, M.C., R.A.M.C. (temporary).
Captain O. D. B. Mawson, R.A.M.C. (temporary).
Captain A. F. L. Shields, R.A.M.C.(S.R.).
Captain C. G. Skinner, R.A.M.C. (temporary).
Captain P. R. Woodhouse, M.C., R.A.M.C. (temporary).
Lieutenant G. L. Gall, R.A.M.C.(temporary).
Lieutenant and Quartermaster W. Gough, R.A.M.C.

Wounded and Missing.

Captain R. D. MacGregor, R.A.M.C. (temporary).

Missing.

Captain A. G. Clark, M.C., R.A.M.C. (temporary).
Captain S. A. Forbes, R.A.M.C. (temporary).
Captain C. C. G. Gibson, R.A.M.C. (temporary).
Captain A. H. Little, R.A.M.C.(T.F.).
Captain J. P. Macvey, R.A.M.C. (temporary).
Captain C. O'Malley, R.A.M.C. (temporary).
Captain H. W. White, R.A.M.C. (temporary).

Prisoners of War.

Captain T. E. Carr, R.A.M.C. (temporary).
Captain H. Cranweller, R.A.M.C. (temporary).
Captain E. H. Griffin, D.S.O., M.C., R.A.M.C. (temporary).
Captain R. W. Hodgson-Jones, R.A.M.C. (temporary).
Captain A. T. I. Macdonald, R.A.M.C. (temporary).
Captain J. G. M. Molony, R.A.M.C. (temporary).
Captain J. C. Muir, R.A.M.C. (temporary).
Captain S. Smith, R.A.M.C. (temporary).
Captain J. Tate, R.A.M.C. (temporary).

Captain E. H. Griffin, D.S.O., was previously reported as killed; a notice of his services was published in the BRITISH MEDICAL JOURNAL of April 13th.

DEATHS OF SONS OF MEDICAL MEN.

Baker, Harold Glasspool, Captain, M.C., 8th Somerset Light Infantry, second son of Dr. Thomas Baker of Waterlooville, Hants, aged 28, killed April 5th. He gained the M.C. and bar in 1917.

Boucher, Henry Mason, Captain Somerset Light Infantry, only surviving son of the late Dr. Arthur Henry Boucher of Hertford, killed April 23rd, aged 27. He got a commission on March 24th, 1915.

Crerar, Donald Campbell, Lieutenant R.F.A., attached R.E., fifth surviving son of the late Dr. John Crerar of Maryport, killed April 24th, aged 34. He got a commission in the Cumberland howitzer battery of the 4th East Lancashire Brigade of Artillery (T.F.) on February 28th, 1915.

Culpin, Clarence H., Australian Infantry, son of Dr. M. Culpin of Taringa, Brisbane, Queensland, killed in France on April 16th.

Cunnington, Lieutenant C. H., eldest son of Dr. Cunnington of West End Lane, Hampstead, died on April 26th from illness contracted on active service. At University College, London, he took first class honours and gained the University scholarship in geology. Subsequently he was appointed assistant geologist in the Geological Survey. He obtained his commission in the 8th Wilts and subsequently was sent to the Dardanelles as geological expert attached to the Royal Engineers, and while there suffered a severe illness. On returning to England, he joined a machine gun corps and went to France in February, 1917, but was invalided out of the army in October. After an operation he resumed his work for the Survey, but his health again broke down last month.

Grange, James Burness, Second Lieutenant West Yorkshire Regiment, youngest son of Dr. J. D'Oyley Grange of Harrogate, formerly of Moffat, killed April 20th. He was educated at Repton and at Guelph Agricultural College, Canada, where he graduated B.Sc. Returning to England, he got a commission through the Inns of Court O.T.C., and went to the front about a year ago.

Millar, Arthur Liberty, Captain Rifle Brigade, only son of Dr. James Millar of Nottingham, killed April 15th. He got his first commission on November 21st, 1914.

Palmer, Edwin, Lance-Corporal London Regiment, youngest son of the late Dr. Grimes Palmer of Loughborough, Leicestershire, reported missing June 15th, 1917, now presumed killed on that date.

Peskett, Guy Eastwood Harry, Second Lieutenant Duke of Wellington's West Riding Regiment, eldest son of the late Dr. A. W. Chalmers Peskett, reported missing on May 3rd, 1917, now presumed killed on that date, aged 26. He was born in September, 1888, became a chartered accountant, got his commission in October, 1915, and went to the front in January, 1917.

Saunders, Robert Stratford Howard, Lieutenant R.F.A., only son of Captain Charles Howard Saunders, R.A.M.C.(T.F.), of Southampton, died of wounds on April 12th, aged 19. He was educated at Marlborough, entered Woolwich in 1915, got his commission in May, 1916, and was promoted to lieutenant in November, 1917. His father is now serving with the Italian Expeditionary Force.

Snell, Eric Aylmer Goldney, Major Bedfordshire Regiment, only son of Dr. G. Snell, late of the Colonial Medical Service, killed in German East Africa on November 16th, 1917. He was born in 1892, educated at Bedford School, and got his commission through Sandhurst in 1912. In March, 1914, he was appointed an assistant commissioner in Uganda, and when war broke out was posted to the King's African Rifles. He served in the Sudan, at Khartoum, in the Belgian Congo, and on the White Nile, and raised a new battalion of the K.A. Rifles. He became captain in the Bedfords in 1915, major in the K.A.R. in 1917, and was mentioned in dispatches on March 27th, 1918.

Stanton, Robert G., Lieutenant Royal Marines, eldest son of Dr. Stanton, of Market Deeping, South Lincolnshire, died at Dover of wounds received in the attack on Zeebrugge on St. George's Day, April 23rd.

Tuzo, John Atkinson, Captain Royal Sussex Regiment, son of the late Dr. Henry Atkinson Tuzo of Warlingham, Surrey, died in East Africa on April 8th, aged 43. His commission as captain in the 6th (Cyclist) Territorial Battalion of the Royal Sussex was dated April 15th, 1915.

Second Lieutenant S. Jackson (acting Captain), 2nd Battalion West Yorks Regiment, only son of Mr. H. L. Jackson (of Messrs. H. K. Lewis and Co., Ltd.), is reported missing since April 24th. He enlisted as a private in the R.A.M.C.(T.), in 1914, was transferred to an O.T.C. in January, 1917, gained his commission in May, and went to France in July of that year.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, dated April 25th, contained the following statements of conspicuous gallantry and devotion to duty for which the awards indicated have recently been granted:

Bar to the Distinguished Service Order.

Temporary Surgeon William James McCracken, D.S.O., M.C., R.N.

He tended and evacuated the wounded in the open under heavy shelling. Hearing that there were many wounded lying in mud and water in shell holes, he led up two platoons with stretchers. When they were fired on he made them take cover and himself advanced through the enemy's fire, bearing a Red Cross flag on his walking stick. This the enemy eventually respected, and so he was able to clear the area of wounded. By his courageous action he saved many lives.

Distinguished Service Order.

Temporary Captain Archibald Stirling Kennedy Anderson, M.C., R.A.M.C.

Under heavy shell fire he led forward a party of stretcher-bearers and collected twenty-five wounded men who were lying within fifty yards of the enemy line. He set a splendid example of courage and self-sacrifice.

Temporary Captain James Thornley Bowman, R.A.M.C.

During an attack he attended to the wounded for five hours in the open under heavy fire. He showed the greatest coolness and courage throughout the day.

Captain George Vernon Davies, A.A.M.C.

He went forward through an intense barrage and established a regimental aid post in an advanced position, remaining on duty continuously for fifty-four hours, often working in the open under heavy fire. When the aid post was hit by a shell he extricated a man who was buried, and continued his work. He remained for fifteen hours after the battalion was relieved till the last man was carried back to safety, and set a magnificent example to all.

Temporary Captain Howard Boyd Graham, R.A.M.C.

During a heavy barrage he personally reconnoitred the advanced aid posts, with the result that many cases were evacuated the moment the barrage lifted. This action undoubtedly saved many lives. On another occasion he went out and brought in two officers and four other ranks who were lying out unattended. Later, hearing that an officer had become a casualty, he went forward and brought him back single-handed to a point whence he was evacuated. His coolness, fearlessness, and devotion to duty were beyond praise.

Captain (acting Lieut.-Colonel) Robert Thin Craig Robertson, R.A.M.C.(S.R.).

When two ammunition lorries were hit by enemy shells he went forward at great risk to where several men had been killed or wounded, dressed their wounds, and had them evacuated. He displayed great initiative and coolness.

Temporary Captain Harvey Gordon Young, C.A.M.C.

During an attack he went forward with a stretcher squad through a heavy barrage and established an advanced aid post. For two days he was untiring in his work of attending to the wounded, and getting them in from advanced areas with complete disregard of danger. By his skilful organization and untiring energy he attended to and evacuated over 400 cases in two days.

Second Bar to the Military Cross.

Temporary Captain George D'Rastrik Carr, M.C., R.A.M.C.

He reconnoitred a route for his bearers under heavy shelling. From 4 a.m. till late the following evening he was continually under heavy fire between his collecting post and the regimental aid post. His constant knowledge of events in the first line enabled only the requisite number of bearers to be used in the more dangerous parts.

Bar to the Military Cross.

Temporary Surgeon James Ness McBean Ross, M.C., R.N.

He attended the wounded in the front line under heavy fire, until himself severely wounded.

Captain David MacDonald Steele, M.C., A.A.M.C.

He was in charge of the evacuation of the wounded from a whole divisional front during thirteen days' operations. On several occasions, when it was impossible to bring casualties through by the existing route, he personally inspected the new line of evacuation on each occasion, and made admirable arrangements for getting them clear and avoiding further casualties.

Captain Robert Bell Stewart, M.C., R.A.M.C.(S.R.)

He successfully carried out the evacuation of the wounded from the regimental aid post, over extremely bad ground, and under very heavy fire.

Temporary Captain Francis Ruthven Thornton, M.C., R.A.M.C.

When in charge of bearers he evacuated the wounded under very adverse weather conditions. When, owing to an intense barrage, bearers repeatedly failed to get through to the advanced regimental aid post, he personally led them forward and remained there for ten hours, evacuating thirty-six serious cases.

Military Cross.

Temporary Captain John Frederick Broughton, R.A.M.C.

He attended the wounded in an exposed aid post under heavy fire throughout the day. He visited the advanced positions whenever he could to organize his bearers and collect wounded. After the battalion was relieved he stayed in the line all the following day to search for wounded. When the medical officer of a neighbouring battalion became a casualty he passed from one aid post to the other under heavy fire and attended to the wounded of both battalions.

Captain Angus Cameron, R.A.M.C.

He attended to the wounded under constant shell fire, during which his regimental aid post was blown up, and he had to continue his work in the open. After heavy casualties had occurred among the stretcher-bearers he organized stretcher parties from all available men, and carried in wounded men himself.

Temporary Lieutenant (temporary Captain) William Kealty Campbell, D.S.O., R.A.M.C.

In searching for wounded he and his party came under heavy fire. Ordering his bearers to take cover in shell holes, he searched the ground by himself, calling up bearers as he required them. When moving away with the last wounded man a shell severely wounded one of the bearers. Ordering the remainder to take their stretcher case into a "pill-box," he remained in the open with the wounded bearer till he died.

Temporary Captain Charles Launder Chalk, R.A.M.C.

He displayed great initiative under shell fire. When his dressing station was crowded with wounded he dressed in the open those who were unable to find cover. Through his promptitude and heedlessness of danger in dressing and clearing away the wounded he undoubtedly saved many lives during a critical period.

Captain Archibald John Collins, A.A.M.C.

He organized a party of forty stretcher-bearers, leading them through two barrages to the front line, and dressing and attending wounded under heavy fire and direct observation.

Captain Joseph Wilfrid Craven, R.A.M.C.

When in charge of bearer parties removing the wounded he discovered many wounded in an old enemy "pill-box," he returned for bearers, and so saved the lives of one officer and six men. During the whole time he was under severe machine-gun fire and shrapnel.

Captain Henry Clarke Davis, C.A.M.C.

He was continually on duty as regimental medical officer for four days and nights, under heavy fire, attending to the wounded, and frequently dressed cases in the open. His courage and determination were responsible for the evacuation of all the wounded before the battalion was relieved.

Temporary Captain Henzell Howard Dummere, R A.M.C.

He voluntarily left shelter and went across difficult ground under very heavy fire to help three seriously wounded men, afterwards conducting the stretcher-bearers to the aid post half a mile away.

Captain Eric Macallan Gordon-Glassford, A.A.M.C.

He attended the wounded under intense shell fire. Finding a squad of bearers exhausted owing to the mud, he and his orderly relieved two of them and helped to carry a wounded man for three miles under shell fire. Finding that a dug-out had been hit and three men buried, he went with a couple of bearers, and, in spite of heavy shell fire, succeeded in extricating the men and getting them away.

Captain Hugh Edward Kirkland, A.A.M.C.

When the enemy concentrated a heavy fire on a battery, one officer and five men being wounded, he went out at great personal risk under this fire and got them to a place of safety.

Captain Guy Ardlaw Lawrance, A.A.M.C.

In addition to his ordinary regimental duties he accompanied a daily convoy of thirty G.S. wagons detailed for road repair. He attended to the wounded in the open irrespective of units, under extreme difficulties and heavy shell fire.

Temporary Captain John Tryweryn Lloyd, R.A.M.C.

As battalion medical officer he frequently went forward under heavy machine-gun and shell fire to supervise the work of his stretcher-bearers.

Captain Alfred James Angel McCabe-Dallas, R.A.M.C.

Seeing a trench some distance off being heavily shelled, although not in medical charge of the troops occupying it, he at once ran to see if he could help any casualties, and while so doing was severely wounded.

Temporary Captain James MacGregor, R.A.M.C.

When in charge of a bearer division he followed up the barrage closely and evacuated the wounded under heavy fire. By magnificent work he cleared the ground of wounded before dusk.

Temporary Captain James Murdoch MacKay, R.A.M.C.

He remained at work although suffering from gas poisoning and continually left the aid post to direct his orderlies and bring in walking wounded cases.

Captain John Shaw Mackay, A.A.M.C.

When in command of bearer division he attended to many casualties which occurred amongst the personnel of batteries and working parties, carrying out his duties in the open with utter disregard of danger.

Captain Philip McRitchie, R.A.M.C.

Coming upon a party of sixteen men wounded by shell fire, he dressed their wounds under a heavy barrage and called for volunteers to carry them to the aid post. Hearing that his commanding officer and adjutant had been wounded about a mile away, he made his way across country under heavy fire and got them to the dressing station.

Captain Melrose Holtom Mailer, A.A.M.C.

He worked for forty-eight hours attending the wounded in the open under most difficult conditions and heavy shell fire.

Captain James Frederick Stewart Marshall, C.A.M.C.

Hearing that there were many wounded in "No Man's Land," he called for volunteers and went forward in charge of them under intense fire. He was continuously on duty for forty-eight hours, and brought in many wounded under most trying conditions.

Temporary Lieutenant Kekhasru Sobrabji Master, I.M.S.

He pushed f rw rd his advanced dressing station and kept in close touch with the regimental aid posts, and collected, dressed and evacuated the wounded. He showed great courage and coolness under heavy fire.

Temporary Captain David Matthew, R.A.M.C.

During two days' heavy fighting he established a dressing station in an advanced position whence he continually went forward to dress wounded and organize carrying parties under heavy fire. He inspired his men to continue their work by his splendid example.

Captain Thomas Williamson Moore, C.A.M.C.

When in charge of bearer parties at an advanced regimental aid post cases had to be attended to in the open under heavy fire, and he worked continuously for forty-eight hours.

Captain Edgar Percival, D.S.O., R.A.M.C.

While he was leading a party of sixteen stretcher-bearers towards the aid post they came under heavy shell fire, and seven were wounded. He got them back and brought up fresh men. One of this party was wounded, and while an attempt was being made to get him back the patient and three bearers were killed. After replacing these casualties he succeeded in getting through at the third attempt, and removed all the wounded.

Temporary Captain Maurice Aloysius Power, R.A.M.C.

When in charge of a bearer division, he collected and dressed wounded under heavy fire. On the way to the aid post his bearer was killed by a shell and he was wounded, but he succeeded in clearing his sector of wounded before dark, and then had to be assisted in an exhausted condition to the dressing station.

Captain Henry Frederick Preston, C.A.M.C.

As regimental medical officer he established an aid post in a most advanced position, and worked under continuous shell fire. He set a magnificent example by his coolness and courage, and his fearlessness and untiring energy saved many lives.

Captain William Dempsey Quilty, A.A.M.C.

When in charge of a bearer division he remained at a cross roads throughout the day attending to casualties and supervising their evacuation, though the enemy was persistently shelling the area with gas and high explosive shells.

Temporary Captain Reginald Thompson Raine, R.A.M.C.

During an intense barrage he went out in the open to attend to wounded, and when his stretcher-bearers became casualties he himself carried cases in. Returning later, he also brought in the stretcher-bearers, though exposed all the while to an intense shell fire. He showed a magnificent example to all, and undoubtedly saved many lives.

Captain Clive Frederic Robinson, A.A.M.C.

On hearing, while with another battery, that two batteries 500 yards away were being heavily shelled with gas, shrapnel, and high explosive shells, and many casualties were occurring, he at once went there, and, in spite of the intensity of the shelling, remained for an hour and a half attending to the wounded.

Captain Christopher Rogers, R.A.M.C.

As medical officer to his battalion during an attack, when his aid post was blown in and all his staff killed or wounded, he remained at his post, working in the open under continuous shell fire over twenty hours, 200 cases passing through his hands. After most of his stretcher-bearers had been killed or wounded, he brought in a large number of wounded himself until he was exhausted.

Captain John Gray Ronaldson, R.A.M.C.(S.R.).
He was in charge of bearers for nine days, almost without rest. He several times went forward under heavy shell fire to attend to gunners who were wounded and lying in the open. During a heavy gas bombardment, in which there were many casualties, he was himself gassed.

Captain Walter Hepburn Scott, C.A.M.C.
He led his stretcher-bearers forward over "No Man's Land" and dressed and brought in many wounded men under very heavy fire. Although buried and severely shaken by a shell, he continued his work.

Temporary Captain Reginald Herman Tribe, R.A.M.C.
Having organized an aid post behind the front line, he dealt untiringly with many wounded cases belonging to several different units, his courage and efforts being the means of saving many lives and much suffering. He showed splendid determination and resource.

Captain Ernest Coulter Whitehouse, C.A.M.C.
He attended to the wounded under heavy fire, going out repeatedly to bring in wounded officers and men.

NOTES.

Vaccines prepared at the Vaccine Department, Royal Army Medical College.

We are indebted to Lieut.-Colonel D. Harvey, C.M.G., R.A.M.C., for the following information:

Since the outbreak of the war and up to the present time the prophylactic vaccines in use for the inoculation of the troops on the various fronts have been prepared in the vaccine department of the Royal Army Medical College, London.

Typhoid.—Down to December, 1915, a simple typhoid vaccine containing 1,000 million bacilli in 1 c.cm. was employed; the amount of this issued was 4½ million doses of 1 c.cm. In addition, 20,000 c.cm. of a mixed paratyphoid vaccine was issued in 1915. Since January 1st, 1916, T.A.B. vaccine so called—that is, a mixed vaccine of *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B—with a dose of 2,500 million bacilli per cubic centimetre has been used, and of this 14 million doses of 1 c.cm. have been issued.

Cholera.—Of cholera vaccine composed of several strains of *V. cholerae* 5½ million doses of 1 c.cm. have been sent abroad, the dose being 8,000 million vibrios in 1 c.cm.

Dysentery.—A new dysentery vaccine has also been prepared; this consists of a mixture of several strains of the various dysentery bacilli, and is injected along with a dose of a specially prepared serum which neutralizes the toxic properties of the bacilli without interfering with their vaccinating powers; 60,000 c.cm. have been issued mostly to Salonica and Egypt, where its use has been attended with success.

Other Vaccines.—The following vaccines have also been prepared and issued: *B. coli* 22,842 c.cm., *Staphylococcus albus* 30,306 c.cm., *Staphylococcus aureus* 95,967 c.cm., staphylococcus (mixed) 62,753 c.cm., acne vaccine 33,736 c.cm., streptococcus vaccine 65,865 c.cm.

Tetanus Antitoxin.—All the tetanus antitoxin and other serums prepared elsewhere is received at the Vaccine Department and issued to the various base dépôts overseas and to hospitals at home. The equivalent of 10 million doses of 500 units of tetanus serum has been dispatched.

Preparation and Dispatch.—The total amount of vaccine prepared and issued, or at present in stock, for the three and a half years of war amounts to 25 million doses of 1 c.cm., equivalent to an average daily output of 20,000 c.cm. The whole of this vaccine has been prepared, standardized, and tested by the medical officers of the department. A large part of the bottling of the vaccines has been carried out by teams of voluntary lady workers, who attend for some hours on certain days, about 70 litres of vaccine being bottled in an afternoon. The vaccine is practically all issued in rubber-capped bottles holding 25 c.cm. and 50 c.cm., about twenty gross a week being used.

A meeting of delegates from Belgium, France, Great Britain, Serbia, and the United States has decided that the International Surgical Society should be dissolved after the publication of the *Transactions* of the meeting held in New York on April 14th, 1917. Any funds remaining after such publication are to be divided *pro rata* among members. Austrian and German members will receive their share, but moneys belonging to members of other nationalities will be applied to some object of scientific reparation in Belgium. A new society on a similar basis, to be called the Inter-Allied Surgical Society, will be constituted after the war. Surgeons of neutral countries will be eligible for membership.

Ireland.

Parliamentary Representation of the Queen's University of Belfast.

It was stated in the issue of April 6th that Sir William Whitla had consented to stand as a candidate for the parliamentary representation of this university. The response to the letter of the secretary of his committee has been most gratifying and enthusiastic; up till now he is practically the only candidate, and the recognition of the claim of the profession to have a medical man filling the seat is widespread. Leaders of all professions are on his committee. There is still some confusion as to who has the right of voting. The Queen's University in Ireland granted degrees up to 1882. This university was then dissolved, and was succeeded by the Royal University of Ireland. Every graduate of the Queen's University became automatically a graduate of the Royal University, and his name was transferred to its roll. On the dissolution of the Royal University in Ireland in 1909, each graduate on its roll had the privilege of deciding whether he would enrol himself as a graduate of the new Queen's University of Belfast, or of the new National University, Dublin. In many cases this right has not been exercised. Unless it be exercised, such graduates of the old Queen's University in Ireland and of its successor, the old Royal University of Ireland, will not have a vote for his university representation. Registration on the roll for a university will not interfere with his right to be registered on the residential franchise in his own district. A woman graduate is entitled to be registered on a university roll on the same conditions as a man if she has attained the age of 30 years. Fortunately, it is still open to any graduate who has not yet registered in the Queen's University of Belfast (or in the National University) to do so before the register closes. He should immediately send a letter to the "Secretary, Queen's University, Belfast," asking to be enrolled as a graduate. No fee or expense attends this procedure. Each graduate thus has the privilege of an extra parliamentary vote for life for the asking of it, provided he acts at once. Medical graduates of the old Queen's University of Ireland, or of the old Royal University of Ireland, who took out their classes in Queen's College, Cork, or Queen's College, Galway, or University College, Dublin, and who do not intend to enrol in the National University, can also be registered as graduates of Queen's University, Belfast, if they state any special grounds for so wishing. The voting is carried out by proxy or post.

Scotland.

Dr. Norman Walker has been appointed inspector of anatomy for Scotland in the room of the late Sir James A. Russell, M.B.

Chair of Materia Medica, Edinburgh.

Sir Thomas R. Fraser, whose resignation of the chair of materia medica in Edinburgh, which he has held since 1877, was announced last week, will be succeeded by Dr. A. R. Cushny, F.R.S., professor of materia medica and pharmacology in the University of London (University College) since 1905. Professor Cushny, who is the son of the late Rev. John Cushny, of Speymouth, Morayshire, graduated at Aberdeen, M.A. in 1886, M.B., C.M. in 1889, and M.D. in 1892. He was assistant to the professor of pharmacology at Strassburg, 1892–3, and professor of pharmacology in the University of Michigan, Ann Arbor, 1893–1905. He is the author of a well-known textbook of pharmacology and therapeutics, which is in its sixth edition, and of an important monograph on the secretion of the urine, published last year.

Central Midwives Board for Scotland.

At a special meeting of the Scottish Central Midwives Board held recently a report by the local supervising authority on the deaths of two patients from puerperal septicaemia was considered; two certified midwives

appeared in answer to the charges of failure to send for medical assistance, and negligence in keeping registers of cases, records of pulse, temperature, etc., as required by the rules. On the conclusion of the hearing the board deliberated *in camerâ*. Sir Halliday Croom, the chairman, intimated that the Board had in each case found the charges proved, and had directed that the secretary remove the name from the roll of midwives and cancel the certificate.

England and Wales.

LEICESTER PUBLIC MEDICAL SERVICE.

REFERENCE has been made in these columns on several occasions to the Leicester Public Medical Service, founded largely through the initiative of Dr. Wallace Henry. We have now received a memorandum describing this organization and its work, which has been issued in anticipation of an extension and development of medical arrangements by local authorities under a Ministry of Health. It is claimed that the Leicester system is capable of being adapted to meet future needs upon any lines which are considered desirable. The service was inaugurated on January 1st, 1913, to provide medical attendance for dependants of insured persons and others. There is a central dispensary and office, with eight branch dispensaries in various parts of the town, at most of which there are consulting rooms. Qualified dispensers make up all the prescriptions. Adults pay 2d. a week, and children less—this payment entitling the member to ordinary medical attendance, and drugs, dressings, etc., and domiciliary visits to those unable to attend at surgery or consulting room. Members have choice of doctor on a panel of more than sixty, and are allowed to change their doctor quarterly, or more often in the event of removal to another part of the town. Specialist treatment for eye, ear, nose, and throat is available for a moderate additional fee, and dental treatment is also arranged for. All the friendly societies in Leicester make arrangements on a contract basis for medical treatment upon their uninsured members through the Public Medical Service. At the inception of the service a complaint committee was set up consisting of four representatives of the friendly societies, four representatives of the medical profession—two only of these being active members of the service—with an independent lay chairman; but no complaint has yet been received. Other activities of the Public Medical Service include the dispensing of medicines for the outdoor sick poor of Leicester by arrangement with the guardians and the provision of specialist treatment for children by arrangement with the Education Committee. Near the central dispensary is a hospital with twenty-seven beds and two operating theatres, where members can be attended by their own doctor at an arranged fee. The number of uninsured members exceeds 42,000, and about 190,000 prescriptions are dispensed annually. There is no canvassing. During the absence of many medical men on military service the central and branch organizations have carried through a scheme for arranging medical attendance for the patients of absentees. From the foregoing summary it will be seen that there is force in the claim that the Leicester Public Medical Service provides for its members a wider range of service and choice than is now afforded by the State for insured persons. Hence the Board of Management confidently suggests that a Ministry of Health or other central authority should encourage the continuance and development of work so successfully carried out by voluntary effort for more than five years past.

THE MATERNITY AND CHILD WELFARE BILL.

The London County Council on May 7th adopted the recommendations of a report by its Parliamentary Committee on the Maternity and Child Welfare Bill to the following effect:

1. That the powers and duties of the local authorities should be more specifically stated and not left to be determined wholly by the Local Government Board, and in any case concurrent powers should not be placed upon the council and the metropolitan borough councils;
2. That the bill should be amended so as not to require the appointment of statutory committees, and that if such committees were set up the local authority should have complete freedom of action as regards matters ancillary (in a wide sense) to the special purpose of the committees;
3. That the powers of the new committees as regards children under 5 years of age who might be eligible for the nursery schools to be established under the Education Bill should be so defined as to prevent competition of authority.

Correspondence.

FUNCTIONAL HEART DISEASE AND RECRUITING.

SIR,—As a member of a medical board, my experience is somewhat different to that of Dr. Drinkwater in his letter of April 27th (p. 494). I do not agree that men who have dilated pupils, marked accentuation of cardiac impulse, and a small compressible pulse are necessarily victims of masturbation. The majority of these cases are due to the cigarette habit, a few are nervous, and a small percentage take drugs to upset their heart.

I have come across similar symptoms in women who are smokers, and I cannot think they are all victims of the vicious habit named in Dr. Drinkwater's letter.—I am, etc.,

Overton, Ellesmere, May 1st. REGINALD MORETON.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

SIR,—With regard to the reply of the chairman and honorary secretary of a Conservative and Unionist Association formed to secure the election of a member of Parliament for the seven combined universities to my letter published on April 20th, I desire to point out that I did not express my party political views. I objected to any candidate being asked to express his party political views. The universities concerned were never formed for party political purposes; the graduates did not depend on their party political "views" to obtain their degrees; and this association has advanced no arguments to justify the introduction of party politics now. That such a procedure has existed elsewhere in the past is no justification for its continuance. The old idea that party politics alone can govern satisfactorily this country or the empire is dead. The Government contains amongst its members many who are now proving this to be the case.

I never expressed my opinion on the keenness or otherwise of this party political association's candidate for social questions. I have not heard his name as yet. I never proposed "that these official bodies—that is, the senates—should take any part in the matter." I said "those in authority," quite a different grouping. In the medical profession we electors would look to the medical leaders of the universities to combine, and thereby assist us "to crystallize our opinions and actions before it is too late."

I would again urge that my medical co-electors put on one side all candidates who come before them wearing a party political label. Such men will be quickly absorbed by the party they belong to, and our profession, now wishful to be represented in the House, will find it might as well have never asked for or obtained the university vote.

My attention has been drawn to a "Universities Parliamentary Representative Association" (honorary secretary: J. F. Ashby, 9, Shalston Villas, Surbiton, Surrey), which includes amongst its conditions "that, other things being equal, preference be given to a candidate who is not the nominee of any of the old political parties." It might be useful for medical electors to write for further details.

Belfast University is finding a medical candidate without looking to a party in politics for any assistance. Surely the medical graduates in the seven universities can do likewise. Who will start the ball?—I am, etc.,

Hove, Sussex, May 4th. E. ROWLAND FOTHERGILL.

PHYSICAL DETERIORATION OF BOYS UNDER WAR CONDITIONS.

SIR,—The State is showing great activity in promoting the welfare of infants and school children.

At the present national crisis there is now another class which needs even more careful protection. I refer to boys between the ages of 14 and 18. Living and practising as

I do in a very extensive munition area, I am of opinion that a very large number of youths will be found physically unfit when the time arrives for them to submit themselves to medical examination for military service.

Three to four years of absence of paternal control, of practically unlimited supplies of money and cigarettes, lack of sufficient sleep through frequent cinemas and music halls, and, finally, in many cases a tendency to indulgence in alcoholic drinks, must all exact an inevitable toll on the growing boy. Were it not for my wish to be brief I could give many instances of mere boys becoming physical and moral wrecks, and I have no doubt doctors in other munition areas could relate similar experiences.

Are the authorities aware of what is going on? If so, cannot some means be adopted to mitigate the mischief? For boys of 16 and 17 to be earning and spending three or four pounds a week (in many cases more) is nothing less than demoralization. Too much money is the root of the evil. I would suggest that no one under the age of 18 be allowed to receive more than (say) 30s. a week, and that any wages in excess of this amount be held in trust till the earner returns to civil life.

I commend to the notice of the Ministry of National Service this very serious subject, for never was there a time when *mens sana in corpore sano* was more urgently necessary in the male adolescent than the present.—I am, etc.,

Enfield, May 4th. HOWARD DISTIN, M.B.

Obituary.

DR. LÉON REVILLIOD, formerly professor of clinical medicine in the University of Geneva, died on March 7th at the age of 82. He was directly descended from Dr. Jean Revilliod (1582–1645), who married Louise Bonet, a sister of Theophilus Bonet, author of the *Sepulchretum*, the first work on morbid anatomy. Léon was born near Geneva in 1835, and was educated at the Academy of that city and afterwards in Paris, where, after serving as interne, he took his doctor's degree in 1865. In 1866 he was appointed assistant physician to the Cantonal Hospital of Geneva, becoming senior physician in 1871. In 1876, when the Faculty of Medicine was established, he was invited to occupy the chair of clinical medicine. In 1899 he resigned his professorship and his hospital appointment. He wrote largely on tuberculosis, and among other subjects dealt with by him were thyroidism, affections of the medulla, fixation abscesses, and the treatment of asthma by antidiphtheria serum. Revilliod was president of the Medical Society of Geneva in 1875 and again in 1902, and was elected a corresponding member of the Paris Académie de Médecine in 1894. He took an active part in the international medical congresses held at Geneva (1877), Amsterdam (1879), London (1881), and Rome (1894), being an honorary president of several of these assemblies.

DR. THOMAS DAVISON CROTHERS, the well-known American authority on inebriety, died at Hartford, Connecticut, of pneumonia, on January 13th. He was born at West Charlton, New York, in 1842, and took his degree at the Albany Medical College in 1865. He was appointed assistant professor of the practice of medicine in the college in 1870, and in 1875 became assistant professor at the New York Inebriate Asylum at Binghamton. In 1878 he was appointed superintendent of the Walnut Hill Asylum, Hartford, and when that institution became the Walnut Lodge Hospital in 1880 he was chosen president and superintendent, and retained that position till his death. He was editor of the *Journal of Inebriety* from 1876, and secretary of the Association for the Study and Care of Inebriates. Dr. Crothers's whole professional life was devoted to the treatment of inebriety and the drug habit. He was the author of *The Diseases of Inebriety* (1893), *Drug Habits and Their Treatment* (1901), *Morphinism and other Drug Diseases* (1902), *Clinical Study of Inebriety* (1911), besides numerous contributions to medical journals.

THE death has occurred, at the age of 58, of Dr. WILLIAM HENRY FORDHAM, who had practised in Sheffield for more than thirty years. After studying medicine at Edinburgh and the Leeds Medical School, he obtained the diplomas L.R.C.P. and L.R.C.S. in 1886. Dr. Fordham had long taken a prominent part in the public affairs of Sheffield, serving for nine years on the city council and doing good work on numerous committees and other local bodies. He was deputy chairman of the Health Committee, in the work of which his professional knowledge and sound common sense were especially valuable. Every form of public endeavour found in him a keen supporter, and last year he was appointed a justice of the peace for the city. For the past year or two his health had been failing, but he was not seriously ill until a week before his death.

MANY members of the profession will have heard with deep regret of the death, on April 24th, of Mr. MUNRO SCOTT, who was warden of the Medical College of the London Hospital from 1880 to 1910. During the whole of this period he served the institution with the greatest zeal and devotion, and was rewarded by seeing it steadily advance in influence and prosperity. Conservative in his outlook, he relied on the maintenance of a high standard on old traditional lines. A man of great perspicacity, wide experience, and sound judgement, a man, too, of warm heart and genial humour, he will be long and honourably remembered by all who knew him.

PROFESSOR BERNHARD KRÖNIG has died at the age of 53. He did much to make Freiburg a teaching centre for gynaecology, and though his name has lately been much associated with "painless" labour, his chief work was concerned with the use of ray treatment in gynaecology.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation, held on May 2nd, the degree of M.D. was conferred, in absence, upon E. Burstal.

UNIVERSITY OF CAMBRIDGE.

THE election of a representative of the university upon the General Medical Council will take place on May 14th. Professor Sir T. Clifford Allbutt, the representative since 1908, does not seek re-election.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—†D. A. Dyer, *†C. W. Hayward, *†S. C. Ho, *†G. L. Mitchell.
MEDICINE.—*N. Cheua, †A. E. Collie, *†M. Girgis, *†S. V. Goldhurst.
FORENSIC MEDICINE.—N. Cheua, M. Girgis, S. V. Goldhurst, H. A. Hughes, T. A. Jordan, C. W. Lakin.
MIDWIFERY.—H. Carter, G. F. Smith, W. J. Wood.
*Section I. †Section II.

The diploma of the society has been granted to Messrs. C. W. Hayward, S. C. Ho, and G. L. Mitchell.

The Services.

INDIAN MEDICAL SERVICE.

TEMPORARY COMMISSIONS.

THE India Office is prepared to receive applications for temporary commissions in the Indian Medical Service to medical men having a knowledge of Indian languages and customs. Full particulars can be obtained from the Secretary, Military Department, India Office, S.W.1. The pay will be at the rate of 24s. a day when serving with an expeditionary force unless the applicant is liable to serve under the Military Service Acts, when it will be at the rates admissible for permanent officers of the Indian Medical Service. An outfit allowance of £30 will be issued. The applicant must be prepared to serve for the duration of the war. A gratuity will be awardable, after the termination by Government of a period of satisfactory service with an expeditionary force overseas. Wound and family pensions and gratuities will be granted under conditions and on the scales applicable to the Indian Medical Service.

ROYAL ARMY MEDICAL CORPS FUND.

THE annual general meeting of the R.A.M.C. Fund (Regular Army) will be held in the library of the Royal Army Medical College, Grosvenor Road, S.W., at 2.30 p.m., on Monday, June 10th, under the presidency of the Director-General. The annual general meeting of the R.A.M.C. Benevolent Society

Regular Army) will take place immediately afterwards. Officers desiring information regarding these funds are requested to communicate beforehand with the secretary, Lieut.-Colonel E. M. Wilson, 124, Victoria Street, S.W.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.

THE usual quarterly committee meeting was held at 11, Chandos Street, Cavendish Square, W., on April 26th, 1918, when grants were made to the orphans of three commissioned officers of the Auxiliary R.A.M.C. and to the widows of three of the rank and file of the Auxiliary Branch of the R.A.M.C. Applications for grants and subscriptions to the funds should be addressed to the honorary secretary, 11, Chandos Street, Cavendish Square, W.1.

Medical News.

THE inter-allied conference on the after-care of discharged sailors and soldiers will be opened at the Central Hall, Westminster, on Whit Monday, May 20th, at 11.30 a.m., by the Duke of Connaught. The King and Queen will visit the exhibition arranged in connexion with the conference at 12.30 on the same day. The conference and exhibition will close on Saturday, May 25th.

ANOTHER discussion at the Royal Society of Medicine on the future of the medical profession under a Ministry of Health will be opened by Sir William Osler on Wednesday, May 29th, at 5 p.m.

DR. R. HOWDEN, professor of anatomy in the Faculty of Medicine, Newcastle-on-Tyne, has been appointed to represent the University of Durham on the General Medical Council.

DR. JAMIESON B. HURRY has presented to the Town Council of Reading an historical picture by Mr. Harry Morley, A.R.C.A., representing the martyrdom of Hugh Faringdon, last Abbot of Reading.

THE Disabled Soldiers' Aid Committee (40, Ebury Street, London, S.W.) asks for disused periodicals, to be made into war envelopes by disabled soldiers, whereby they are able to earn as much as £1 a week.

ON the initiative of Professor Gradenigo stations of psycho-physiological research on the effects of aviation have lately been founded at Turin and Naples. They are chiefly intended for the examination of candidates for service as air pilots.

A CONFERENCE on maternity nursing will be held in the Board Room of the Metropolitan Asylums Board (Embankment, Blackfriars Bridge) on June 4th. Sir William J. Collins, M.P., who will preside, will open a discussion at 5 p.m. on maternity nursing in relation to the district nursing services of London.

THE first of a course of lectures and demonstrations on ambulance work and first aid will be given at the College of Ambulance, Vere Street, Cavendish Square, W., on Thursday next, at 4.30, by Sir James Cantlie, K.B.E., who will deal with aid to the agricultural worker. Other lectures will be given at the same hour and place on Thursdays during May, June, and July. Particulars can be obtained from the secretary.

DURING the annual meeting of the South-Eastern Union of Scientific Societies, which is to take place in London at the end of this month in the rooms of the Linnean Society (Burlington House, Piccadilly, W.), a discussion on mosquitos in England will be opened by Colonel Sir Ronald Ross, K.C.B., F.R.S. This discussion will be held at 8 p.m. on Thursday, May 30th, in the theatre of the Civil Service Commission, Burlington Gardens, Piccadilly, W., and will be open to all interested in the subject.

AT a meeting of the East Sussex Medico-Chirurgical Society held at the East Sussex Hospital on April 26th Dr. Overend gave an *x*-ray demonstration of certain diseases of the chest by means of lantern slides. After illustrations of the normal chest slides were shown of hilar and peritracheal phthisis in various stages; of interlobar tubercle (discrete and confluent) and its subsequent development, either into ordinary disseminated peribronchial phthisis, or into a slow, advancing fibro-caseous form, with the formation of cavities in the interlobar area, which are often silent to the stethoscope. In one example the interlobar opacity was grafted on pneumoconiosis. Radio-slides were also exhibited showing disseminated peribronchial tubercle, unilateral and bilateral, active and progressive, stationary and arrested, with the production of cavities; chronic indurated phthisis, and unilateral pure fibroid lung; asthma and emphysema; commencing and resolving pneumonia; Hodgkin's disease and mediastinal sarcoma affecting the paratracheal glands, before and after *x*-ray treatment; bronchiectasis and subphrenic abscess.

THE United States Secretaries of State of War and Navy have authorized the organization of a committee in Washington, with branch committees in London and Paris, for the collection, classification, and dissemination of scientific, technical, and industrial research information, with special reference to war problems, and the interchange of such information between the Allies in Europe and the United States. The British and French committees are to establish contact with all important research laboratories and agencies, governmental and private. They will prepare reports on the results obtained; maintain continuous contact with the work of military and naval attachés; serve as auxiliaries in the collection, analysis, and compilation of information, and as centres of distribution to the American Expeditionary Forces in France and to the American naval forces in European waters of scientific and technical information originating in the United States and to the Allies in Europe. The headquarters of the Committee in Washington are in the offices of the National Research Council, 1023, Sixteenth Street. The branch committees are located at the American Embassies in London and Paris.

Letters, Notes, and Answers.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

HAY FEVER.

DR. LIONEL JAMES PICTON writes in response to our request for suggestions for the local treatment of hay fever: I have found that the unguentum acidi salicylici introduced several times a day into the nostrils—either with the little finger or the butt end of a wax match or wax taper—is of value.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

J. C. writes: Dr. Fothergill's letter in the BRITISH MEDICAL JOURNAL of April 20th contains the following: "... who knows his subject and *who* we can support." The letter in the JOURNAL of May 4th signed by Sir W. M. Abbot Anderson and Herbert G. Williams contains the following: "These are presumably the official bodies *whom* he suggests should wake up." Alas for the preliminary education which is displayed in these letters.

INVALID RATIONS.

DR. A. KINSEY-MORGAN (Bournemouth) writes with reference to Dr. E. I. Spriggs's article (p. 505): Differentiation is not always made between constitutional and alimentary diabetes; thus with a mistaken diagnosis the patient is burdened with an unsuitable diet for his requirements; such a case has quite recently come under my observation. "Extra rations," as Dr. Spriggs points out, are only suitable for "subjects of persistent glycosuria who are in need of special diet." In tuberculous cases it is imperative that a generous diet of protein and fat should be allowed; nutrition is thus maintained, and the arrest of the disease is a manhood gain from the public point of view. Dr. Spriggs's concluding remarks on "restricted tastes" are words of wisdom which should appeal to all of us as a great help out of many of our daily difficulties.

TWO CASES OF PTOSIS (? BOTULISM).

DR. JOHN W. DUNCAN (Hockley, Birmingham) sends us notes of two cases he has seen within the last fortnight which may be instances of botulism. (1) A married woman, several months pregnant, who had been ill a few days, was, when first seen, sitting by the fireside with both eyes closed. She was dull, but spoke when addressed and could raise the eyelids, the right more than the left. She had herpes on the upper lip. She was admitted to hospital next day. (2) A man aged 56, first seen on April 19th, had been ill for some time with drowsiness, closed eyes, and twitching fingers. On the previous night he had delusions. He was constipated, and the temperature was raised—on May 4th it was 103°; since May 3rd he had been confined to bed, comatose, speechless, and taking no food. The eyelids are persistently closed, and he does not respond when spoken to. The right side of the face is smooth, the left drawn, showing a deep line. The hands twitch; the plantar reflexes are present. The bowels

have been opened after castor oil. The only point in his history bearing on his illness was that he had eaten pig's pudding a fortnight before being taken ill.

TREATMENT OF MENINGITIS.

MRS. FYSH, M.B.Lond. (Dryhurst, Tonbridge), writes: In reply to Captain Cade (April 13th, p. 444) I would recommend the iodine treatment, which must be carried out carefully in every detail, for example, the iodine tincture being applied all over the head and not merely "to the shaven crown," for meningitis in cases of the acute suppurative variety either alone or complicating an acute fever such as pneumonia or enteric. I have only tried it in one case of the tuberculous variety; it was unsuccessful, but the child (a Jewess of 10 years) came under my care late in the second week of her illness. Of the four other cases mentioned in my previous letter, one, a woman, died, and pus was found in the meninges in all parts; it was white, and in places inspissated, as if beginning to undergo absorption. Dr. Castellani reported the presence of a diplococcus in this case. The diagnosis of the other three was made on clinical grounds only; they were all very acute and apparently hopeless young children suffering from the characteristic symptoms, one having passed the convulsive stage and being in deep coma when he began at last to respond to treatment. This is a kind of meningitis which so far I have not seen in England, but which occurs with some frequency in Ceylon.

GLYCERIN IN THE TREATMENT OF WOUNDS.

DR. A. OGIER WARD (London, E.C.) writes with reference to Mr. A. E. Morison's article (March 23rd) on the virtues of magnesium sulphate for wounds: I find that the recipe contains 1½ lb. magnes. sulph. and 11 oz. glycerinum ac. carbol. (1 to 10). Why use the magnesium sulphate? Is it not time that the key to all antiseptic treatment should be recognized to be osmosis? And is not glycerin the simplest and most ideal substance for its promotion?

DO MOVING PICTURES INJURE THE EYES?

IN a communication to *The Annals of Ophthalmology* last year Dr. Bahn of New Orleans comes to the following conclusions: (1) Moving pictures, under favourable conditions, do not cause as much fatigue as the same period of concentrated reading. (2) Most persons who complain that the pictures cause ocular discomfort have some defect of the eye. (3) Moving pictures act as a test of distant vision endurance. A person with no ocular defect should be able to enjoy at least four sittings, of one and a half hours each, a week with no discomfort. (4) Under unfavourable conditions the pictures produce ocular fatigue. (5) A review of the literature up to date records no permanent harm to the eyes from the cinema.

AN OLD MILITARY MEDICAL PHARMACOPOEIA.

DR. OLDERIGO GRANDINI gives in *La Medicina Pratica* an account of a *Pharmacopoeia Austriaco-Castrensis*, printed at Vienna in 1795. It is a list of the remedies then considered most useful for soldiers on campaign. It includes vulneraries (Hoffmann's liquor and the theriaca); extracts of aconite, anodynes, taraxacum, and bark; liquorice plasters (simple, compound, and blistering); sublimate and other mercurials; anodyne, mercurial, and purgative pills; Dover's powder; resins of guaiacum and julep; confections of elder, juniper, and prune; Glauber's salts, tartar emetic and other forms of tartar; oils of aniseed, juniper berry, peppermint, turpentine, and laurel berry; antimony in various forms; vinegars (litharge and squills); mercurial, "nervine," and other ointments, one being for scab. Fifty-nine formulae are given for the use of these substances in military hospitals.

THE BEGINNING OF CLINICAL TEACHING.

ANDREA FERRANNINI, writing in the *Riforma Medica*, claims for Italy priority in the foundation of scientific academies. The Accademia Cosentina was founded by Parrasio at Cosenza in 1550; the Accademia dei Segreti, a leading member of which was Giovanni Battista della Porta, discoverer of the camera obscura and founder of the science of physiognomics a century before Lavater, at Naples in 1600; the Accademia dei Lincei at Rome, by Prince Cesi, in 1603; the Accademia del Cimento, by pupils of Galileo, under the patronage of Prince Leopold of Tuscany, in 1657. The Royal Society of London was founded in 1660, and the Paris Académie des Sciences in 1666. The first Academy of Medicine in Europe was founded at Palermo in 1623 as an annexe to the School of Anatomy. Ferrannini also claims precedence for Italy in the foundation of university chairs of medicine. He says that the first anatomical amphitheatre was established at Padua in 1490 through the efforts of Alessandro Benevetti, and the first chair of clinical medicine at Padua by Giovanni Battista Da Monte in the hospital of St. Francis in 1543. Instruction at the bedside had, however, been given in ancient Rome, as we know from Martial's epigram about Symmachus; in the Nestorian school at Edessa in the fifth century, in the Arabic schools, and also by some mediaeval teachers, such as Lanfranc. Withington, in his *Medical History from the Earliest Times* (p. 312), says that although the system had been revived at Padua for a short period during the Renascence, clinical teaching in the modern sense had its origin in the "little infirmary at Leyden with its twelve beds." Francis de la Boe (Sylvius, the discoverer of the fissure in the brain which bears his name), writing in 1664, says: "I have led my pupils by the hand to medical practice, using a method unknown at Leyden, or perhaps elsewhere, that is taking them daily to visit the sick at the public hospital."

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending May 4th:

	£	s.	d.
Dr. John Fletcher ...	1	1	0
Dr. W. O. Magoris ...	2	2	0
Dr. Hodgson Moore ...	1	1	0
Dr. J. B. Cumming ...	2	2	0
Dr. J. A. Alston	1	0	0
Surgeon James M. Harrison, R.N.	0	10	6
Dr. Archibald Donald ...	5	5	0
Dr. F. W. Garrad... ...	1	1	0
Dr. Percy Ashworth ...	1	1	0
Dr. R. W. Innes Smith ...	5	5	0
Dr. E. C. Duncan... ...	1	1	0
Royal College of Physicians of London (per Sir Dyce Duckworth, treasurer)	105	0	0
Dr. B. S. Browne	1	1	0
Dr. E. C. Prichard ...	3	3	0
Lieutenant John Ritchie, R.A.M.C.	1	1	0
Dr. T. Ridley Bailey ...	1	1	0
Dr. Percy Rowland ...	0	10	6
Sir Alfred Pearce Gould.	5	0	0
Dr. H. Morley Fletcher	3	3	0
Mr. E. Spencer Evans ...	0	10	0
Dr. W. H. Davies... ...	2	2	0
Dr. G. Rome Hall ...	1	1	0
Dr. W. B. Bennett ...	2	2	0
Dr. Herbert Caiger ...	1	1	0
Captain T. G. Longstaff.	4	17	0
Dr. W. Hartigan... ..	1	1	0
Dr. C. Smyth	2	2	0
Dr. David Rice	1	0	0

Monthly Subscriptions.

Surgeon P. G. S. Davis, R.N....	0	10	0
Sir Alfred Pearce Gould.	5	0	0
Mr. E. Spencer Evans ...	0	10	0
Dr. Herbert Caiger ...	0	10	6

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE COMMEMORATIVE MEDAL IN THE SERVICE OF GERMANY.

THE industry of German propagandists in keeping up warlike enthusiasm in their own homes and in attempting to impress neutrals is curiously shown in the issue of war medals, of which at least 580 have found their way to other lands; selections can be studied in the Victoria and Albert Museum, South Kensington, and in the War Exhibition at Burlington House. With the light touch of a velvet-covered hand, Mr. G. F. Hill, Keeper of the Department of Coins and Medals, British Museum, has described, in a pamphlet with the title at the head of this note (Longmans, 6d.), the various kinds, and criticizes their bearings—the patriotic impressions of the reigning house, including that of the Crown Prince, which, if, as is reported, they be accurate, have surely rendered the caricaturist's skill unnecessary; the hero-worshipping reproductions of von Hindenburg, of von Tirpitz—nothing if not genial—of von Kluck wistfully gazing at the distant fortifications of Paris; the "victory pennies" of the bombardment of Scarborough and Hartlepool and of Zeppelin attacks on the London docks; and the medals for satiric purposes, such as the notorious *Lusitania* production "flagellating the levity of mind of the Cunard line," and that of the landing of the Indians at Marseilles. While exposing the want of humour and the bad taste obvious in many instances, Mr. Hill refers to the pleasing conception of Götz's memorial medal of Admiral von Spee and his two sons with the German Eagle flying over a waste of waters to lay a laurel branch on their ocean grave. This is shown in one of the seventeen illustrations. That museums devoted to the ethnology of primitive races should preserve specimens of these German war medals for the future student is a proper provision.

A GAS GANGRENE RHYME.

H. M. E. sends us the following metrical "tip," which, though rather absolute, has, he says, proved helpful to a casualty clearing station in France:

> When a compound fracture's seen, bubbly pus denotes gangrene.
> If the skin is grey and mottled and the circulation's throttled,
> Resonance upon percussion does away with all discussion.
> Amputate by night or day; death ensues if there's delay.

THE appointment of certifying factory surgeon for Newbury (Berks) is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.